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PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Future Virology 2023

PEERS ALLEY MEDIA

A CONFLUENCE OF ERUDITE & KNOWLEDGE-SEEKER

PROGRAM-AT-A-GLANCE

FUTURE VIROLOGY 2023

SEPTEMBER 11-12
2023

Scientific Program

BST - British Summer Time

06:45-07:00	**Opening Ceremony**

Distinguished Speaker Talks

Topics: Immunology | Virology | Immunology Education | Autoimmunity | Epidemiology | Immunogenetics | Cancer Immunology | Immunotherapy | Viral Immunology | Translational Immunology | Vaccines | Cytokines and Chemokines | Transplantation Immunology | Inflammation

07:00-07:20	**Title: Predicting post-hepatectomy liver failure preoperatively for Child-Pugh score 5 hepatocellular carcinoma patients by liver stiffness** **Huang Jiayao,** *Sun Yat-Sen University First Affiliated Hospital, China*
07:20-07:40	**Title: Targeting peroxynitrite-induced IL-2R nitration in Tregs could be a promising therapeutic strategy for multiple sclerosis treatment** **Jiangang Shen,** *The University of Hong Kong, China*
07:40-08:00	**Title: Current state of diagnostic imaging as a valuable screening tool for lung cancer and infectious pulmonary diseases** **Ikuma Kasuga,** *Tokyo Medical University, Japan*
08:00-08:20	**Title: Molecules and microgravity** **Gabrielle Caswell,** *Spaceport Australia, Australia*
08:20-08:40	**Title: Lessons from the covid-19 pandemic. It's time to rewrite the immunology textbooks** **Javdat Muratkhodjaev,** *Institute of Immunology and Human Genomics of Academy of Sciences of Uzbekistan, Uzbekistan*
08:40-09:00	**Title: An effective approach for early liver disease prediction and sensitivity analysis** **Md. Ashikur Rahman Khan,** *Noakhali Science and Technology University, Bangladesh*

09:00-09:20	**Title: Guillain-Barre Syndrome following the second dose of covid AstraZeneca vaccine in a 78- year- old Male: Case report from Nepal** **Sabin KC,** *Gandaki Medical College, Nepal*
09:20-09:40	**Title: Study of effects of hyperimmune bovine milk on decreasing hospital admission and improving clinical symptoms of home cared covid-19 patients** **Hassan Nili,** *University of Isfahan, Iran*
Refreshment Break 09:40-10:00	
10:00-10:20	**Title: Suppression of viral reproduction by phosphorilated polyprenols: A review** **Alexander V. Sanin,** *Ministry of Health of the Russian Federation, Russia*
10:20-10:40	**Title: Manifestations of covid-19 infection in children having malignancy** **Mousa Ahmad Qatawneh,** *Queen Rania children's Hospital, Jordan*
10:40-11:00	**Title: Comparative prevalence of different types of viral hepatitis in the district Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan** **Muhammad Ashraf Khan,** *Elementary and Secondary Education Department, Pakistan*
11:00-11:20	**Title: Improved bacterial inhibition by electrical stimulations produced from polypyrrole-graphene oxide triboelectric nanogenerator** **Elham Asadian,** *Shahid Beheshti University of Medical Sciences, Iran*
11:20-11:40	**Title: Survey of genetic variations in the viral envelope proteins of sheep pox and goat pox with remarkably altered putative binding affinities with the host receptor and effective in pathogenicity** **Maryam Torabi,** *Veterinary Organization of Khorasan Razavi, Iran*
11:40-12:00	**Title: Shunt nephritis: An exceptional disease that still subsist** **Coraima Claudia Nava Chavez,** *Gregorio Marañón Hospital, Spain*
12:00-12:20	**Title: RNA-RNA interactions regulate the essential functions of viral RNA genomes** **Alfredo Berzal-Herranz,** *Instituto de Parasitología y Biomedicina López Neyra - CSIC, Spain*

12:20-12:40	**Title: Increased percentage of apoptotic and CTLA-4 (CD152) expressing cells in CD4+/CD8+ cells in covid-19 patients** **Khalid Ali Nasif,** *King Khalid University, Saudi Arabia*
Lunch Break 12:40-13:10	
13:10-13:30	**Title: HLA sensitization in the era of covid-19 and the impact on transplant laboratory** **Rabab Ali Abdullah al Attas,** *King Fahad Specialist Hospital-Dammam, Saudi Arabia*
13:30-13:50	**Title: Epidemiological profile of Ebola virus disease in the Boké region 2014-2018** **Fatoumata Doumbouya,** *Field Epidemiologist, Ministry of Health, Guinea*
13:50-14:10	**Title: 'Warburg effect' controls tumor growth, bacterial, viral infections and immunity - Genetic deconstruction and therapeutic perspectives** **Jacques Pouysségur,** *University Côte d'Azur, France*
14:10-14:30	**Title: Donor derived hematopoietic stem cell niche transplantation facilitates mixed chimerism mediated donor specific tolerance** **Xin Xiao Zheng,** *University of Pittsburgh School of Medicine, USA*
14:30-14:50	**Title: Comparative characterization of bispecific antibodies with different molecular formats** **Wen Jin Wu,** *U.S. Food and Drug Administration, USA*
14:50-15:10	**Title: Trained immunity underlies persistent inflammation in ART-treated HIV-1 infection** **Michael Bukrinsky,** *The George Washington University, USA*
15:10-15:30	**Title: Losartan induced angioedema** **Venkata Vedantam,** *East Tennessee State University, USA*
15:30-15:50	**Title: A case report of diffuse alveolar hemorrhage coexisting with immunoglobulin A (IgA) nephropathy** **Michael Kolman,** *Advocate Lutheran General Hospital, USA*
Refreshment Break 15:50-16:10	

16:10-16:30	**Title: An unusual cause of fever, neck pain, and neck stiffness: Acute Q1 calcific tendinitis of the Longus Colli muscle** **Douglas Rappaport MD,** *Mayo Clinic Hospital, USA*
16:30-16:50	**Title: Self-assembling EABR virus-like particles as a platform technology for hybrid mRNA vaccines** **Magnus Hoffmann,** *California Institute of Technology, USA*
16:50-17:10	**Title: Unlocking viral nanomechanics: Atomic-detail mesh models for simulating capsid behavior** **Mauricio Carrillo-Tripp,** *CINVESTAV, Mexico*
17:10-17:30	**Title: Histological characteristics of chronic allergic rhinitis versus non allergy: Is there a difference in the remodelling?** **Tamara Michelle Acosta Castillo,** *IESS El Batán, Ecuador*
17:30-17:50	**Title: Baseline severity and inflammation would influence the effect of Simvastatin on clinical outcomes in Cirrhosis patients** **Alberto E. Munoz,** *University of Buenos Aires, Argentina*
17:50-18:10	**Title: Viruses as a versatile tool: From the discovery of new species in the environment to a framework for monitoring human health** **Julieta Marina Manrique,** *University National of Patagonia San Juan Bosco, Argentina*
18:10-18:30	**Title: PRODERMA skin cancer screening search at Jornada del Lunar activity to Salvadorean population** **Silvia Anett Mejía Rodríguez,** *PRODERMA, El Salvador*
18:30-18:50	**Title: Advanced methods to augment intelligence in vaccine post-market surveillance** **Taxiarchis Botsis,** *Johns Hopkins University, USA*
18:50-19:10	**Title: Proactively preventing future viral epidemics and pandemics** **Sunil J Wimalawansar,** *Cardio Metabolic & Endocrine Institute, USA*
19:10-19:30	**Title: Metabolic syndrome among human immunodeficiency virus patients on antiretroviral therapy attending clinic at a district hospital in Ghana** **Kwabena Opoku-Addai,** *Presbyterian University, Ghana*
Closing Remarks	

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YOUR DATES

2ND GLOBAL
VIROLOGY CONGRESS

September 2024 | Rome, Italy

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SCIENTIFIC ABSTRACTS

Global Virology Congress

September 11-12, 2023

Predicting post-hepatectomy liver failure preoperatively for Child-Pugh score 5 hepatocellular carcinoma patients by liver stiffness

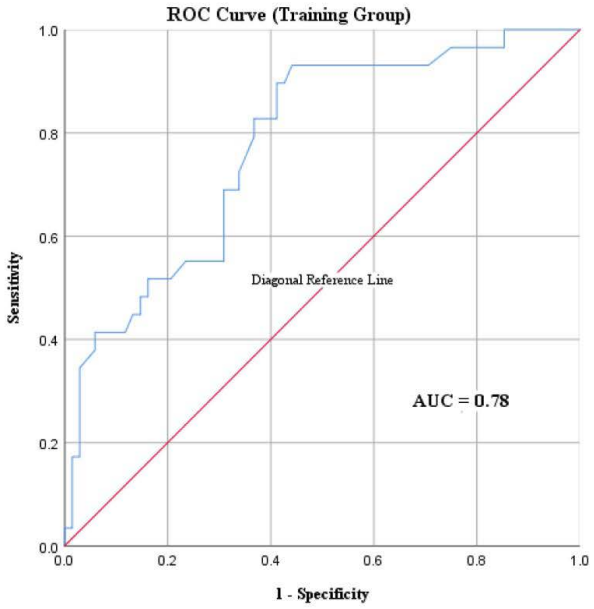
Huang Jiayao[1], Long Haiyi[1], Peng Jianyun[1], Zhong Xian[1], Shi Yifan[1], Xie Xiaoyan[1], Kuang Ming[2] and **Lin Manxia[1]**

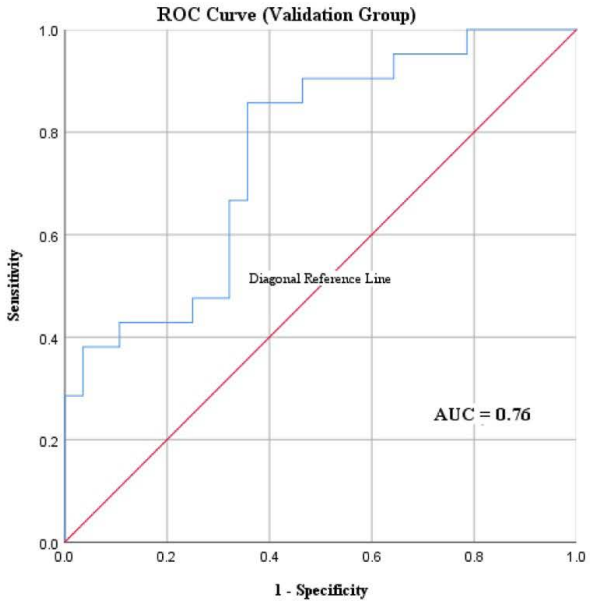
[1]Department of Medical Ultrasonics, Sun Yat-Sen University First Affiliated Hospital, China

[2]Department of Liver Surgery, Sun Yat-Sen University First Affiliated Hospital, China

Background: Post-hepatectomy liver failure (PHLF) represents the major source of mortality after liver resection (LR) in hepatocellular carcinoma (HCC) patients. Child-Pugh (CP) score 5 is always considered to indicate a normal liver function but represents a heterogeneous population with a considerable number suffering from PHLF. The present study aimed to access the ability of liver stiffness (LS) measured by two-dimensional shear wave elastography (2D-SWE) to predict PHLF in HCC patients with a CP score of 5.

Methods: From August 2018 to May 2021, 146 HCC patients with a CP score of 5 who underwent LR were reviewed. The patients were randomly divided into training (n =97) and validation (n =49) groups. Logistic analyses were conducted for the risk factors and a linear model was built to predict the development of PHLF. The discrimination and calibration were assessed in the training and validation cohorts by the areas under the receiver operating characteristic curve (AUC).





Results: Analyses revealed that the minimum of LS (Emin) higher than 8.05 (p =0.006, OR =4.59) and future liver remnant / estimated total liver volume (FLR/eTLV) (p <0.001, OR <0.01) were independent predictors of PHLF in HCC patients with CP score 5, and the AUC calculated by the model based on them for differentiation of PHLF in the training and validation group was 0.78 and 0.76, respectively.

Conclusion: LS was associated with the development of PHLF. A model combining Emin and FLR/eTLV showed proper ability in predicting PHLF in HCC patients with a CP score of

Biography

2016-2021: Bachelor's Degree in Clinical Medicine from Sun Yat-sen University

2021-Present: Pursuing Master's Degree in Clinical Medicine from Sun Yat-sen University

Mainly focus on clinical issues and ultrasound diagnosis/intervention related to hepatocellular carcinoma and other liver, gallbladder, pancreas, and spleen diseases.

Targeting peroxynitrite-induced IL-2R nitration in Tregs could be a promising therapeutic strategy for multiple sclerosis treatment

Jiangang Shen and **Meiling Wu**

The University of Hong Kong, China

Treg deficiency plays a crucial role in multiple sclerosis (MS), but factors that affect Treg remain largely unclear. Herein, we tested the hypothesis that peroxynitrite, a representative active molecule of reactive nitrogen species (RNS), could induce the nitration of interleukin-2 receptor (IL-2R), reduce Treg population and functions and aggravate MS pathology. The study was performed by using mouse model of experimental autoimmune encephalomyelitis (EAE) to mimic the MS pathology. In the EAE mice, the increases of 3-nitrotyrosine and IL-2R nitration in Treg cells were coincided with the disease severity and progression. Mechanistically, peroxynitrite induced IL-2R nitration and suppressed the mTOR/STAT5-AP-1 pathway to promote the IL-10 secretion in the EAE pathology. Peroxynitrite reduced periphery Treg expansion and functions, and increased Teff infiltration in the CNS, aggravating demyelination and neurological deficit in the EAE/MS pathology. The progress was abolished by peroxynitrite decomposition catalyst (PDC) treatment. Those results suggest that periphery regulation of IL-2R nitration in Tregs could be a promising therapeutic strategy to modulate CNS immune homeostasis in the EAE/MS pathology. Subsequently, we used *Rehmannioside* D (RehD), a natural compound with scavenging peroxynitrite and BBB impermeable, as a representative drug candidate for proof-of-the-concept. RehD treatment inhibited IL-2R nitration, improved Treg functions and expansion, and ameliorate EAE/MS pathology. Together, periphery antioxidants therapy on Tregs could be a promising strategy, and might enhance the efficacy of Treg cell therapy to modulate CNS immune homeostasis for EAE/MS treatment.

Biography

Dr. Shen Jiangang is full Professor of School of Chinese Medicine, State Key Laboratory of Biomedical Technology, the University of Hong Kong. His research focus on oxidative and redox regulations and drug discovery for neuroinflammation and immune response in stroke and multiple sclerosis. His studies have been supported by more than 50 research funds. He has published over 230 original articles and review papers in academic journals internationally. He has published 19 books or book chapters in international and domestic publication houses. He has filed 11 international and domestic patents.

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GLOBAL VIROLOGY CONGRESS

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Current state of diagnostic imaging as a valuable screening tool for lung cancer and infectious pulmonary diseases

Ikuma Kasuga[1,2,3]

[1]*Healthcare Center, Shinjuku Oiwake Clinic and Ladies Branch, Japan*
[2]*Tokyo Medical University, Japan*
[3]*Tohto University, Japan*

The usability of diagnostic imaging by chest radiography (CXR) and/or low-dose computed tomography (LDCT) as valuable screening procedure has been debated and remains controversial. We review the usefulness of CXR and LDCT as veridical methods for screening lung cancer and infectious pulmonary diseases.

Although LDCT screening for lung cancer has shown capability of early detection and can help improving outcome in large randomized trials, it has not been as widely used as CXR screening. The major reason of LDCT screening is the high cost and radiation exposure. In the case of pulmonary infections, LDCT can reveal tiny inflammatory changes that are not observed on CXR, though many of these cases were community-acquired pneumonia and improve spontaneously by their immune responses. Therefore, LDCT screening for pulmonary infections may be less useful than that for lung cancer. CXR screening is more suitable for the detection of pulmonary infections. In case of chronic obstructive pulmonary disease (COPD), LDCT screening contributes to early detection and can lead to the implementation of smoking cessation treatments. However, the major problem remains that COPD and its clinical importance are still not as well recognized compared with lung cancer.

In conclusion, LDCT screening is considered a useful method for facilitating the early detection and treatment of lung cancer and COPD; however, it is difficult for it to become widely used. In contrast, CXR remains the most commonly used imaging procedure, especially for pulmonary infections owing to its widespread availability, low radiation exposure, and low cost compared with LDCT.

Biography

Ikuma Kasuga is a director of Shinjuku Oiwake Clinic, professor at Tokyo Medical University and Tohto University. After he got PhD from Tokyo Medical University, he went to do a visiting scientist at University of British Columbia, Vancouver, BC, Canada. His research focus is immunogenetic approach to pulmonary diseases.

Molecules and microgravity

Gabrielle Caswell

Spaceport Australia, Australia

Humans are on the cusp of realising the dream of space flight and interplanetary exploration. A fundamental fact remains: the environment of space, like all extreme environments, is hostile to human growth, development and wellbeing. Our technology may provide shelter and protection, but the insult of various radiations and microgravity may prove to be humanities greatest survival challenge.

Immuno-suppression and T cell dysfunction is recorded on short haul space flights, implications for longer space flights and interplanetary exploration must be considered. Three dimension functional immune molecular and human cellular structure is Earth bound. For humans to thrive in space, a broad understanding of atomic force and study of molecular behaviour in microgravity is needed.

Biography

Dr. Caswell is actively involved in the aviation and space industries, creating a research hub Spaceport Australia to encourage novelty research and problem solving approaches to space medicine and human live ability in microgravity environments. Dr Caswell's clinical practice, Eyra Medical, resides in rural NSW where she offers a variety of services, including aviation medicals, www.eyramedical.com.au. Dr Caswell's academic interests include are varied. She holds a number of professional fellowships and memberships: and is the current serving president of ACAM, an Australian medical college.

Dr. Caswell's academic qualifications span both arts and science:

BSc (NTU), BSc (ECU), MB;BS (UQ), BA (UNE),

Dip. Practical Dermatology (Cardiff, Wales)

Master of Medicine (Primary Care Skin Cancer Medicine) (University Queensland)

Master Arts (Cultural astronomy and Astrology)(University Wales Trinity St David College)

FRACGP, FACRRM, FACAM and Retired- FCPCA Memberships

Medical Review Officer (MRO)

Member Skin Cancer College of Australasia Member American Society of Aerospace Medicine

- Society of Human Factors

Member Australian Society of Aerospace Medicine Member elect- Airline Medical Directors Association Member AMORA

Member RACGP Special Interest Group Dermatology

Lessons from the covid-19 pandemic. It's time to rewrite the immunology textbooks

Javdat Muratkhodjaev

Institute of Immunology and Human Genomics of Academy of Sciences of Uzbekistan, Uzbekistan

The history of any scientific discipline moves from one paradigm to another as new facts and discoveries are accumulated that cannot be described within the existing theory. So in immunology, such a time has come. The discoveries in the late 90s of the 20th century of the mechanisms of CRISPR-Cas and RNA interference summed up the theoretical basis, and the current COVID-19 pandemic provided gigantic factual material for the creation of a new theory of antiviral protection.

It became clear that high titers of antibodies against SARS-Co2 are directly related to the severity of the disease, according to reports from the Bureau of Statistics in the United States, Australia and Western Europe, widespread vaccination leads to increased mortality, and analysis of the incidence of COVID by age directly indicated the aggravating role of the immune system in viral infections. All this forces us to reconsider the old dogmas of immunology. One such dogma is that the memory of infection is formed only by T- and B-cells. Immunologists are well aware that this is only part of the picture and that innate immunity can remember and learn. It has long been known that bacteria, plants, and invertebrates lacking T and B cells are capable of developing systemically acquired resistance.

In all kingdoms of the living world, there is a single mechanism of antiviral protection based on the use of small RNAs. In my report, I will dwell on the mechanisms of this RNA-dependent antiviral defense in detail.

Biography

Higher Education & Work Experience

• 1981-1987--Tashkent State Medical Institute, Student, First-class Degree with distinction

• 1987-1993--Institute of Physiology and Biophysics of the Academy of Sciences of the Republic of Uzbekistan.

Assistant, Postgraduate, Senior Research Worker 14 scientific publications, July 1993 –Degree of Doctor of Philosophy (Ph.D.) in Biology

• 1993-2000--"Bristol-Myers Squibb", USA (pharmaceutical company). Consultant, Representative, Area Manager, Country Manager Uzbekistan

• 2000-2018--"Metroplex Trading International", GB (pharmaceutical company). Head of Representative Office

• 2018-2020--"Genex", Uzbekistan (pharmaceutical company). Head of department (R&D)

• 2020- to Present -- Institute of Immunology and Human Genomics of the Academy of Sciences of the Republic of Uzbekistan. Head of department (International Relations).

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September 11-12, 2023

An effective approach for early liver disease prediction and sensitivity analysis

Md. Ashikur Rahman Khan[1], Faria Afrin[1], Farida Siddiqi Prity[1], Ishtiaq Ahammad[2], Sharmin Fatema[1], Ratul Prosad[1], Mohammad Kamrul Hasan[1], Main Uddin[1] and **Zayed-Us-Salehin[1]**

[1]Department of Information and Communication Engineering, Noakhali Science and Technology University, Bangladesh

[2]Department of Computer Science and Engineering, Prime University, Bangladesh

The liver is one of the most vital organs of the human body. It works usual, even is partially damaged. Therefore, detecting liver diseases at the early stages is very difficult and challenging. Early detection of liver problems can improve patient survival rates. This research enlightens on several Artificial Intelligence techniques, including the Bagged Tree, Support Vector Machine (SVM), K-Nearest Neighbor, and Fine Tree classifier, to predict the presence of liver disease in a patient at an early stage. The current study compares those models and selects the best technique to detect liver disease at an early stage. The classification performance is measured using the Confusion matrix, True Positive Rate, False Positive Rate, ROC Curve, and accuracy. The result shows that the Bagged Tree classifier achieves the highest classification accuracy (81.30%), which is very promising compared to the other algorithms. The proposed system also performs sensitivity analysis on the dataset to investigate the impact of each attribute on the model's performance. It has been demonstrated that Alanine Aminotransferase (sgpt) attribute has the most significant impact on the prediction of liver disease. The proposed method could be used as an assistant framework for liver disease at an early stage.

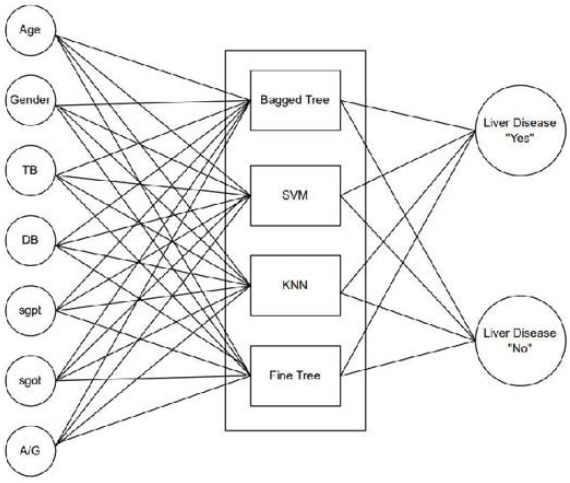

Figure: *Liver disease prediction model structure*

Biography

Md. Ashikur Rahman Khan is a Professor at the Department of Information and Communication Engineering, Noakhali Science and Technology University, Bangladesh. He has been working at Noakhali Science and Technology University since 2006. He also served as an Assistant Engineer in IT Directorate, Bangladesh Rural Electrification Board, Dhaka, from 2001 to 2006. Dr. Khan has possessed of working experience of 22 years. Professor khan received his Bachelor's and Master of Science from Rajshahi University of Engineering and Technology, Rajshahi, Bangladesh, in 1999 and Bangladesh University of Engineering and Technology, Dhaka, Bangladesh, in 2004, respectively. He achieved his PhD degree in 2012 from University Malaysia Pahang, Malaysia. His research interests include Artificial Intelligent, Neural networks, Machine Learning, Modelling, and Advance Machining. He has around 65 publications in distinct indexing international journals. Professor khan has taken part in about 30 national and international conferences.

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Guillain-Barre Syndrome following the second dose of covid AstraZeneca vaccine in a 78- year- old Male: Case report from Nepal

KC. Sabin and **Thapa. Pratima**

Gandaki Medical College, Pokhara

Case presentation: Guillain-Barre Syndrome (GBS) is a rare acute idiopathic demyelinating polyneuropathy that causes bilateral, symmetrical and progressive weakness of muscles. Here we describe a case of a 78-year-old male who presented with bilateral weakness of the lower limbs over 4 days following the second dose of the AstraZeneca vaccine. On examination, the power and tone of the limbs were diminished. The sensitivity pinprick test revealed low sensitivity in the right lower limb than in the left lower limb. Nerve conduction studies revealed acute inflammatory demyelination polyneuropathy and the patient was diagnosed with GBS. After admission, the patient was successfully treated with intravenous immunoglobulin along with physiotherapy.

Clinical Discussion: GBS can be diagnosed clinically with nerve conduction studies and Brighton's criteria. The robust causal relationships between COVID-19 infections, COVID-19 vaccination, and GBS are still unclear. The evaluation of the potential association and risk of GBS with vaccines warrants the need for precise post-vaccination surveillance measures and results.

Conclusion: Only a few cases of GBS following the second dose of AstraZeneca are reported so far and there is a need for strong and accurate diagnosis of the disease of the disease and proper post-vaccination surveillance for the evaluation of risk associated with COVID vaccines.

Biography

I graduated from Gandaki Medical College in 2018. I am highly interested in clinical research as I was a editior-in-chief of our college Vencor as well. Recently I am a research coordinator in Gandaki Province State of Nepal.

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Study of effects of hyperimmune bovine milk on decreasing hospital admission and improving clinical symptoms of home cared covid-19 patients

Hassan Nili[1,2], M Bouzari[1,2], HR Attaran[2], SA Mahmoudian[5], S. Sadeghi[5], P. Nasri[5], M. Rabbani[3] and **N. Ghalehgoulab[4]**

[1]*University of Isfahan, Iran*
[2]*Zeitoon Isfahan Vaccine Innovators Company, Iran*
[3]*Department of Cellular and Molecular Biology and Microbiology, University of Isfahan, Iran*
[4]*Razi Serum and Vaccine Research Institute, Agricultural Research, Education and Extension (AREEO), Iran*
[5]*Isfahan University of Medical Science, Iran*

This is a randomized double-blind placebo controlled clinical trials to evaluate effectiveness of hyper-immune bovine milk in improving clinical symptoms of home cared COVID-19 patients. In this study 510 home cared volunteer covid-19 patients with positive RT-PCR results were given either 150 cc (placebo) or hyper-immune bovine milk twice a day for five days. After completing and signing the informed consent form, patients were subjected to study in treatment (n=238) and placebo (n=272) groups. Results obtained from comparison of two treatment and placebo groups showed that there was no significant difference between two groups regarding, age, sex, background diseases, number of days which they had clinical signs before starting milk consumption and number of milks consumed. However, there was significant difference between two groups in various clinical signs such as duration of anosmia and ageusia, diarrhea, fatigue and dizziness. In fact, these clinical signs were significantly improved in group consumed hyper-immune bovine milk.

Biography

Professor Hassan Nili is currently deputy of Virology research center of University of Isfahan, Iran. He is also CEO of Zeitoon Isfahan Innovators company, Isfahan Sciences and Technology Town, Iran. During last 20 years he has been involved in pathogenesis study of Viruses with pandemic potential while he has been working as an academic member of School of Veterinary sciences of Shiraz University. Following Covid-19 pandemic, he has been involved in extensive inter-disciplinary research project on using dairy product as an immunomodulator for prophylaxis and therapeutics proposes to fight against Covid-19.

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Suppression of viral reproduction by phosphorilated polyprenols: A review

Alexander V. Sanin, A. N. Narovlyanskiy, V.V. Poloskov, T.N. Kozhevnikova and **A.V. Pronin**

Gamaleya National Research Center for Epidemiology and Microbiology, Ministry of Health of the Russian Federation, Russia

Polyprenols are long-chain isoprenoid alcohols that play a crucial role in the functioning of the organism, being the predecessors of dolichols. While free polyprenols are metabolically inactive, phosphorylated polyprenols or polyprenylphosphates (PP) possess many physiological activities, which makes them attractive objects for the development of therapeutic remedies. Here special attention is attributed to the antiviral activity of these unique compounds. To date, only four officially registered drugs based on the PP are known: Phosprenyl® and Fortepren® (active substance is PP from Siberian fir), Gamapren® and Polyprenyl Immunostimulant ™ (active substance is the moraprenyl phosphates from mulberry leaves). While Fortepren® has been registered in human medicine for prevention of genital herpes viral infections during remissions or in complex therapy (during relapses), three other drugs are widely used for therapy of viral diseases in the veterinary medicine.

Table. Antiviral efficacy of PP

presence of the envelope	1-chain RNA	1-chain DNA	2-chain DNA
yes	Orthomyxoviruses (influenza A virus, bird flu virus H5N1) Paramyxoviruses (canine distemper virus, measles virus) Coronaviruses (feline infectious peritonitis virus, mouse hepatitis virus, transmissible gastroenteritis virus, bovine coronavirus) Togaviruses (tick-borne encephalitis virus, yellow fever virus, Western horse encephalitis virus, hepatitis C virus) Rhabdoviruses (rabies virus) Retroviruses (bovine leukemia virus, Rauscher leukemia virus, human immunodeficiency virus)		Herpes viruses: - herpes simplex virus, - Aujeszky's disease virus, - Marek's disease, cytomegalovirus Poxviruses (ectromelia virus)
no	Picornaviruses (hepatitis A virus, Theiler murine encephalomyelitis virus) Caliciviruses	Parvoviruses (parvovirus, feline panleukopenia virus)	Adenoviruses Papovavirus (papillomavirus)

PP disrupts various stages of the life cycle of viruses, regulate cellular immune response and control inflammatory reactions in viral infection.

Both *in vitro* and *in vivo* studies reveal the ability of PP to suppress the reproduction of many DNA and RNA viruses that play an important role in animal and human pathology (table).

One of the key mechanisms of PP antiviral activity is the suppression of viral proteins prenylation. Prenylation is the process of post-translation modification of proteins, in which the lipophilic isoprenyl group joins the viral protein synthesized de *novo*. Inhibition of prenylation violates the assembly and production of viral particles. PP presumably inhibits viral prenyltransferases, which, in combination with the suppression of glycosylation, leads to a violation of the assembly of the virions and the formation of defective particles.

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GLOBAL VIROLOGY CONGRESS

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Manifestations of covid-19 infection in children having malignancy

Mousa Qatawneh MD[1], Moath Altarawneh MD[1], Ruba Alhazaimeh MD[1], Mais Aljazazi MD[1], Omaiema Jarrah MD[1], Alaa Alshorman MD[2], Layla Alsadah MD[3] and **Maher Mustafa MD[1]**

[1]Department of Pediatric Hematology and Medical Oncology, Queen Rania children's Hospital, Jordan

[2]Department of Neonatology, Queen Rania children's Hospital, Jordan

[3]Department of General Pediatric, Queen Rania children's Hospital, Jordan

Introduction: Corona virus disease 2019 (COVID-19) is causing a global health crisis since the end of 2019, all countries are following the guidelines and the recommendations released by the WHO to decrease the spread of the disease. Children account for only (3-5) % of cases of COVID-19. Few data are available regarding the clinical course, the severity of the disease and mode of treatment in children with malignancy and COVID-19.

Aim: To evaluate the treatment plan and the outcome of children who have malignancy and developed COVID-19.

Setting: Queen Rania Al Abdallah Children's Hospital, Royal Medical Services, Jordan.

Methods: A retrospective review of the medical files of patients who have malignancy and developed COVID-19 in the period from July 2020 till June 2021.

The following data were reviewed for all patients: Primary disease, laboratory data, admission ward, clinical status upon admission, disease coarse, treatment plan and the outcome.

Eligible patients were patients who had malignancy and tested positive for COVID-19 on reverse transcription polymerase chain reaction (RT-PCR).

Results: A total of 40 patients who have malignancy developed COVID-19 during the period from 1st of July 2020 to 1st of June 2021.

Primary disease for them were as the following: 34 patients (85%) had hematological malignancies (30 of them had acute lymphoblastic leukemia, 2 of them had acute myeloblastic leukemia and 2 of them had Hodgkin lymphoma), while 6 of our patients (15%) had solid tumor (2 of them had neuroblastoma, 2 of them had rhabdomyosarcoma, and 2 of them had CNS tumors).

12 of our patients (30%) didn't need hospitalization and they underwent home isolation only, while 28 patients (70%) required hospitalization (26 patients were admitted in the COVID-19 ward and 2 patients were admitted in the pediatric intensive care unit).

Conclusion: COVID-19 with malignancy in pediatric age group has a benign course and doesn't increase the risk of having severe infection compare to other children.

Biography

- Dr. Mousa Ahmad Qatawneh is a Senior Specialist in Pediatric Hemato-Oncology at Queen Rania Children's Hospital.
- Clinical Instructor at Faculty of Medicine at The Jordanian University of Science and Technology.
- Arab Board of Pediatric Hemato-Oncology
- European Board of Bone Marrow transplantation and cellular therapy

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Comparative prevalence of different types of viral hepatitis in the district Dera Ismail Khan, Khyber Pakhtunkhwa, Pakistan

Muhammad A. Khan

Elementary and Secondary Education Department, Pakistan

Objectives: To determine the comparative prevalence of different types of viral hepatitis in the study area.

Scope: Viral hepatitis causes both liver inflammation and damage and is a serious health problem.

Methods: The indoor data of different types of hepatitis were collected from the official records of the administration of District Head Quarter Hospital Dera Ismail Khan for 2 years (2020–2021).

Results: A total of 1193 cases of viral hepatitis during the study period were found including viral hepatitis C accounted for 547 (45.9%) cases, followed by the co-infection of viral hepatitis A and E 367 (30.8%) cases, and viral hepatitis B 279 (23.4%) cases. March showed the highest prevalence of hepatitis (33.2%), followed by February (10.2%). The co-infection of hepatitis A and E showed a relatively higher prevalence in 6 months from May to November except September including a peak in June (76.5%) during the study period. While viral hepatitis B demonstrated a comparatively higher percentage prevalence in both February and September with a peak in February (68%), and viral hepatitis C is dominant in January, March, and December with a peak in March (83.8%).

Conclusion: All types of viral hepatitis showed variation in prevalence over months and monthly variation concerning peak prevalence exists among different types of hepatitis. Both viral hepatitis A and E demonstrated similar trend in relative prevalence in both 2020 and 2021. Nevertheless, viral hepatitis A and B showed monthly and seasonal variation in relatively prevalence in both years. The study help in adopting strategies for the prevention of viral hepatitis in the study area.

Biography

I am Dr. Muhammad Ashraf Khan from Pakistan and did my M.Sc. in Zoology from University of Peshawar and PhD from University of Peshawar with PhD research at the University of Georgia, Tifton Campus, USA under the supervision of Dr. John R Ruberson of the Department of Entomology, University of Nebraska, USA. Please see my research profile links for more information.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Improved bacterial inhibition by electrical stimulations produced from polypyrrole-graphene oxide triboelectric nanogenerator

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[2]Shahid Beheshti University of Medical Sciences, Iran
[3]University College Dublin, Ireland
[4]Sharif University of Technology, Iran
[5]Department of Medical Physics and Biomedical Engineering, Shahid Beheshti University of Medical Sciences, Iran

Triboelectric nanogenerator (TENG)-based devices capable of converting the harvested mechanical energy into electricity has been considered as a feasible strategy for developing the next-generation of self-powered wearable biomedical and healthcare systems. In this regard, the antibacterial properties play a key role for practical applications. Herein, a polypyrrole-graphene oxide (PPy-GO) composite TENG with superior electrical outputs and bactericidal activity has been successfully developed by a facile electrodeposition route. The final performance of the TENG can be fine-tuned by controlling the electrochemical polymerization conditions as well as the amount of GO nanosheets in the composite layer. The experimental results revealed that the addition of GO nanosheets to the polymer layer can significantly enhance the triboelectric effect of the electrodes which was further confirmed by computational modeling. Under optimal conditions, the open-circuit voltage (V_{oc}) and short-circuit current (I_{sc}) were obtained as 413.2 V and ~ 41 µA, respectively. The antibacterial studies demonstrated an efficacious bactericidal activity for the PPy-GO electrode. The antibacterial mechanism was comprehensively investigated through the morphological studies, along with qualitative and quantitative ROS generation measurements. It was revealed that the synergistic effect of the presence of GO nanosheets and TENG-based electrical stimulations resulted in the improvement of the ROS generation and rupture of cellular membranes of S. aureus as the bacterial model. The proposed TENG electrode with promising triboelectric output performance and great antibacterial activity holds great promise for portable/wearable electronics.

Biography

Dr. Asadian obtained her PhD in 2016 from Sharif University of Technology, Iran, where she worked on electrochemical sensing platforms based on graphene nanostructures. Currently, she is an assistant professor at the School of Advanced Technologies in Medicine, Shahid Beheshti University of Medical Sciences. Her current research interest lies in the development of wearable biosensors, as well as the development of nanostrategy-based drug delivery systems and tissue engineering.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Survey of genetic variations in the viral envelope proteins of sheep pox and goat pox with remarkably altered putative binding affinities with the host receptor and effective in pathogenicity

Maryam Torabi[1], H. Alwan[2] and **M. B. S. Al-Shuhaib[3]**

[1]Reference Laboratory of Pox Virus, Veterinary Organization of Khorasan Razavi, Iran

[2]Department of Pathobiology, Ferdowsi University of Mashhad, Iran

[3]Department of Animal Production, Al-Qasim Green University, Iraq

The outbreak of Sheep and goat pox (SGP) viral infections have increasingly been reported despite vaccinating the majority of sheep populations in Iran. The objective of this study was to predict the impacts of the SGP P32/envelope variations on the binding with host receptors as a candidate tool to assess this outbreak. The targeted gene was amplified in a total of 101 viral samples, and the PCR products were subjected to sequencing. The polymorphism and phylogenetic interactions of the identified variants were assessed. Molecular docking was performed between the identified P32 variants and the host receptor and the effects of these variants were evaluated. Eighteen variations were identified in the investigated P32 gene with variable silent and missense effects on the envelope protein. Based on the direct effect of missense variations on the viral envelope protein, five groups (G1 – G5) of amino acid variations were identified. While there were no amino acid variations in the G1 (wild-type) viral protein (n 38), the G2 (n 12), G3 (n 22), G4 (n 16), and G5 (n 13) proteins had seven, nine, twelve, and fourteen SNPs, respectively. Based on the observed amino acid substitutions, multiple distinct phylogenetic places were occupied from the identified viral groups. Dramatic alterations were found between G2, G4, and G5 variants with their proteoglycan receptor, while the highest binding was revealed between goatpox G5 variant with the same receptor. In conclusion, it was suggested that the higher severity of goatpox viral infection originated from its higher affinity to bind with its cognate receptor. This firm binding may be explained by the observed higher severity and pathogenicity of the SGP cases from which G5 samples were isolated. These findings remained to be verified by wet-lab experiments.

Biography

- Maryam Torabi is currently Manger of Reference Laboratory for SP & GP in Asia and the Pacific region.
- She earned her Bachelor of science at Biology in Razi University of Kermanshah, in 1995, and her MSc at Microbiology in University of Lahijan, in 2003 and PhD in Biotechnology in Razi vaccine and serum institutein 2017. She is Expert in a variety of genomics biotechnology techniques such as set up diagnostic PCR and Real time PCR methods to detect bacterial, viral and parasites agents also software analysing real time PCR and gene expression ,epitope and vaccine designing and molecular docking using servers such as Discotope, Ellipro, Bepipred, ProtScale, IEDB, ExPAsy, NCBI, Mega, Oligo, SNAPGENE
- She has been working on animal viral diseases, especially capripox viruses, for many years.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Shunt nephritis: An exceptional disease that still subsist

Coraima Claudia Nava Chavez[1], Ana García Prieto[1], Eduardo Verde Moreno[1], Rosa Melero Martín[1], Patrocinio Rodríguez Benítez[1], Miguel Villa Valdés[1], Adriana Acosta Barrios[1], Anthony Gurjiain Arena[2], Francisco.Díaz-Crespo[3] and **Marian Goicoechea Diezhandino[1]**

[1]Department of Neprology, Gregorio Marañón Hospital, Spain
[2]Department of Internal Medicine, Gregorio Marañón Hospital, Spain
[3]Department of Pathology, Gregorio Marañón Hospital, Spain

Introduction: The shunt nephritis, is a rare complication of chronic infections in relation to shunt devices (peritoneal, atrial or jugular) used for the hydrocephalus treatment. Is mediated by circulating immune complexes, and the pathogenesis is still unknown.

Case Report: A male patient of 38 years old, from Colombia, with history of noncommunicating hydrocephalus due to viral meningitis.

A ventriculoperitoneal shunt (VPS) was placed when he was two years, with posterior mechanic and infectious complications, so it was changed to a ventriculoatrial shunt (VAS).

Despite that change, the infectious complications were recurrent, and were also associated with acute kidney failure (AKI), nephrotic proteinuria and macroscopic hematuria.

The improvement of the infection was accompanied with AKI recovery, but the proteinuria and microscopic hematuria persist. Furthermore, the patient had anemia, hypocomplementemia and positive crioglobulins.

Since his arrival to Spain, he required hospitalization for bacteremia due to *Cutibacterium acnes* twice. The first time the cerebrospinal fluid cultures were negatives, so the VAS was not removed. But the second time, the cerebrospinal fluid culture was positive, leading to an urgent VAS withdrawal. In consensus with Neurosurgery and Microbiology Departments once the antibiotic treatment was finished it was placed an antibiotic-impregnated VPS.

In each one of the episodes, the patient developed AKI, macroscopic hematuria and nephrotic proteinuria. A kidney biopsy was performed, showing a membranoproliferative glomerulonephritis pattern, reaching the diagnosis of infection-related GN.

The outpatient evolution was good, with no infection recurrences and with the recovery of the renal function.

Discussion: The shunt nephritis is an illness with non-specific clinical nor analytical manifestations. If the diagnosis is delayed, the evolution to an end-stage kidney disease or even death are inevitable. Therefore, in all patients with shunt devices and suspected diagnosis, even with negative cultures, the early treatment will be essential to prevent the serious complications.

Biography

M.D. San Francisco Xavier of Chuquisaca University, Sucre, Bolivia 2012-2018.

Nephrology Resident, Gregorio Marañon Hospital, Complutense University, Madrid, Spain 2020-Present.

Current Position: Third year resident. Nephrology Department

Professional Memberships and Activities

Member of the Medical College Association of Madrid.

Member of the Nephrology Spanish Society.

Publications

"Shunt Nephritis: An exceptional disease that still exist". C. Nava, A. García-Prieto, E. Verde, R. Melero, P. Rodriguez, M. Villa, A. Acosta, A. Gurjiain, F. Díaz-Crespo, M. Goicoechea. 2023.

Oral Presentations

National/International Meetings:

- "Secondary nephropathy due to mercury intoxication. And now, what will we do?. 15 Reunión del Grupo de Enfermedades Glomerulares de la S.E.N. (GLOSEN). 2022.
- "Secondary nephropathy due to mercury intoxication. And now, what will we do?. 52 Congress of Sociedad Española de Nefrología (SEN). 2022.
- "hypokalemia, metabolic alkalosis and normomagnesemia in a young adult women". VIII International Symposium of the Federation of European Societies on Trace Elements and Minerals. 2022.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

RNA-RNA interactions regulate the essential functions of viral RNA genomes

A. Berzal-Herranz[1,2], C. Romero-López[1], S.E. Ramos-Lorente[1] and **B. Berzal-Herranz[1]**

[1]Instituto de Parasitología y Biomedicina López Neyra - CSIC, Spain

[2]Member of LifeHUB.CSIC, Spain

Efficient fight against infectious diseases caused by viruses, particularly RNA viruses, is a global health challenge. Strategies to combat them have traditionally been aimed at achieving the inhibition of viral proteins, without satisfactory results to date, highlighting the urgent need to define alternative targets of action. This implies an in-depth understanding of the molecular mechanisms that govern the essential processes of viral replication and infection cycles. RNA viral genomes contain all the information necessary to successfully complete the viral cycle. To achieve this, RNA viruses use different strategies for storing genetic information. Thus, they encode information in highly conserved structural units that perform essential functions without being translated into proteins. In this lecture I will review the studies that we have conducted in our research group during last decade with the aim of functionally characterizing structurally conserved RNA units from genomes of members of the family *Flaviviridae*, mainly hepatitis C and West Nile viruses. We and others have provided clear evidences for the existence of a genomic network of RNA/RNA interactions that determine the structure of the RNA genome and thus their function throughout the viral cycle. Changes in this structure govern the regulation of essential viral processes. Direct interference with the functioning of these structural units, through modification of their structure or competition of the interactions in which they participate represents a promising antiviral strategy. Thus these highly conserved structural RNA units constitute a large repertoire of potential targets against which to direct RNA-binding molecules. I will give also some examples of their potential as antiviral targets.

Biography

Alfredo Berzal-Herranz Graduated in Biology in 1986 at the Complutense University of Madrid, Spain. He received his Ph.D in 1990 at the Autonomous University of Madrid. He spent three years as Postdoctoral fellow at Prof. John Burke, University of Vermont, USA. He joined the IPBLN-CSIC, Granada, Spain in December 1993, where he established his own research group. His main research interest is the Biological activity of the RNA, studying structure and function of natural RNA molecules and the development of RNA tools. During last years dedicated to understanding the functioning of structural RNA units of viral RNA genomes. He has published near 100 research articles and is editor In-Chief of Biopharmaceuticals section of Pharmaceuticals. He has been Director of the IPBLN-CSIC since 2005 to 2014.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Increased percentage of apoptotic and CTLA-4 (CD152) expressing cells in CD4+/CD8+ cells in covid-19 patients

Khalid Ali Nasif[4,5], Asmaa M Zahran[1], Hanaa Nafady-Hego[2], Alaa Rashad[3], El-Badawy Omnia[2], Amr Talat Mostafa[6], Heba Ahmed Osman[7], Eptehal Mohammed Dongol[3], Abdelkader Ahmed Hashim[8], Ghada Abdelrazek[9], Nehad Hassan Abd Elrahman[10] and **Asmaa Nafady[11]**

[1]Department of Clinical Pathology, South Egypt Cancer Institute, Assiut University, Egypt
[2]Department of Microbiology and Immunology, Faculty of Medicine, Assiut University, Egypt
[3]Department of Chest Diseases and Tuberculosis, Qena Faculty of Medicine, South Valley-University, Egypt
[4]Department of Clinical Biochemistry, College of Medicine, King Khalid University, Saudi Arabia
[5]Department of Biochemistry, Faculty of Medicine, Minia University, Egypt
[6]Department of Anesthesia and Intensive Care Medicine, Faculty of Medicine, Assiut University, Egypt
[7]Department of Tropical Medicine and Gastroenterology, Qena Faculty of Medicine, South Valley University, Egypt
[8]Department of Internal Medicine, Faculty of Medicine, South Valley University, Egypt
[9]Department of Radiodiagnosis, Qena Faculty of Medicine, South Valley University, Egypt
[10]Department of Otorhinolaryngology, Qena Faculty of Medicine, South Valley University, Egypt
[11]Department of Clinical and Chemical Pathology, Qena Faculty of Medicine, South Valley University, Egypt

Coronavirus infectious disease 2019 (COVID-19) confirmed cases are characterized by T lymphopenia. Total apoptotic and cytotoxic T-lymphocyte antigen-4 (CTLA-4) expressing cells among CD4+/CD8+ cells were analyzed in 24 COVID-19 patients (16 out-patients and 8 in-patients) and 18 healthy volunteers using flow cytometry to detect their possible role in T lymphopenia. Hospitalized patients did not show significant difference compared to non-hospitalized patients. While the percentage and absolute count of CD4+/CD8+ cells were significantly reduced in COVID-19 cases compared to healthy control ($P < .05$), the proportion of apoptotic and CTLA-4 expressing CD4+/CD8+ cells were significantly up-regulated in COVID-19 patients ($P < .05$). In addition, apoptotic and CTLA-4+/CD4+ cells were directly related to dyspnea duration, chest CT score, ferritin, and C-reactive protein and inversely correlated with platelet count in COVID-19 patients. While apoptotic and CTLA-4+/CD8+ cells were directly related to lymphocyte count in COVID-19 patients. The apoptotic and CTLA-4+ cells were directly related to each other in CD4+/CD8+ cells ($P < .05$). White blood cells (WBCs) (×103/L), eosinophils (ratio and count), lymphocyte ratio, neutrophil ratio, neutrophil/lymphocyte ratio, neutrophil/CD4 ratio, neutrophil/CD8 ratio, CD4+ cells ratio, and CTLA-4+ cells percentage), and CD8+ cells (ratio, count, total apoptotic cell, and CD152 + cells) were all found to be significantly altered in association with COVID-19. Total lymphopenia and depletion of CD4+/CD8+ cells are characterizing COVID-19 patients. Increased apoptosis and CTLA-4 expression in CD4+/CD8+ cells in COVID-19 and their correlations with reduced cell count and severity indicators as CRP and ferritin can be used for diagnosis and follow up of the clinical severity. Our current study proposes promising future diagnostic and therapeutic targets.

HLA sensitization in the era of covid-19 and the impact on transplant laboratory

Rabab Ali Al Attas, Mohammad Awaji, Amani Mohammed, Kenana Alajlan and **Alanoud Alshami**

Histocompatibility & Immunogenetics Laboratory, Department of Pathology and Laboratory Medicine, and Division of Pediatric Nephrology and Kidney Transplant, Multiorgan Transplant Center, King Fahad Specialist Hospital-Dammam, Saudi Arabia

It is well known that several viral infections are capable of triggering formation of HLA antibodies; however, an association between SARS-CoV-2 & development of anti-HLA antibodies is not yet confirmed. In this study, we compared the prevalence of HLA antibody before & after COVID-19 infection in a cohort of 3 groups included 58 healthy nonsensitized employees (HNEs), 130 kidney transplant recipients (KTRs) & 62 kidney transplant candidates.

There were no significant changes observed in HLA class I antibodies in any of the 3 groups, but evaluation of antibodies to HLA class II revealed a significant change in KTR group (P = .0184) after acquiring COVID-19 infection and in HNE group (P = .0043) when compared to the reported prevalence in a similar population. Although we observed the emergence of convalescent de novo donor-specific antibodies in 2 patients, we did not encounter any rejection episodes in KTR group.

In a separate study during COVID-19 pandemic, we observed 22% discordant results out of 445 FCXM performed during an eight months period in our laboratory & another 7% were invalid due to high background negative control. No study has addressed the impact of COVID-19 pandemic on FCXM and the overall pre-kidney transplant workups or described a solution to deal with these non-specific reactivities. Herein, we analyzed all FCXM results in SARS-CoV-2 seropositive patients and addressed how this pandemic affected significantly the pre-kidney transplant workups, highlighting both technical and financial implications.

In conclusion, COVID-19 infection has the potential to produce class II antibodies but with little effect on preexisting sensitization. These antibodies are likely to be transient and not necessarily causing positive crossmatch with the corresponding antigens.

Further evaluation of these antibodies revealed that these antibodies might creating many false positive or invalid crossmatch results. Transplant laboratories must consider this before test interpretations.

Table 1: *Demographic Characteristics of the 3 Cohorts Included in the Study*

Cohorts	Age (y): Mean ± SEM	Sex: M/F
Healthy nonsensitized employees ($n = 58$)	36.3 ± 3.4	54/4*
Kidney transplanted recipients ($n = 130$)	19.4 ± 1.9	90/40
Kidney transplant candidates ($n = 62$)	23.3 ± 2.8	36/26

*
The 4 women were single nulliparous women.
SEM, standard error of the mean.

Table 2: *Number of FCXM included in the Study and the Number and Characteristics of Sera that Gave Discordant (false positive) or Invalid (high NC¥) FCXM Results.*

	Number	Percentage
Total Number of FCXM investigated	**445**	
Discordant FCXM results	107	22%
Invalid FCXM results	32	7%
All Problematic FCXM	139	
Patients with Discordant FCXM Results	**88***	
Patient Characteristics		
Pediatric patients	26	30%
Adult patients	62	70%
Male/Female	42/46	48%/52%
Sensitized Patient with Weak€ DSA	19	22%
Patient with Negative DSA	69	87%
Characteristic of the Discordant FCXM		
B+T-	57	64%
B+T+	24	27%
T+ B-	7	9%
Total	**88**	**100%**

¥Negative control

*19 sensitized patients out of 88 giving discordant FCXM with weak DSA underwent surrogate cells FCXM in addition to the initial FXCM with their corresponding donors

€ Weak DSA = MFI less than 2,000

Biography

Academic Degree:

- MBBS
- Clinical Pathology
- Immunopathology & Molecular Genetics
- 2010-2012: Fellowship in Anderson, USA

Board Certification:

- American Board of Medical Laboratory Immunology (D-ABMLI)
- Accredited ASHI- HLA- lab Director, F (ACHI)

70 researches, Oral Presentations in International and National Conferences/Symposia.

25 Abstract for ASHI Meetings and published in Human Immunology

Publications: 28 publications.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Epidemiological profile of Ebola virus disease in the Boké region 2014-2018

Fatoumata Doumbouya[1], Claude Ngona Mandro[2] and **Salomon Corvil[3]**

[1]Field epidemiologist, Ministry of health, Guinea
[2]Field epidemiology training program mentor, AFENET, Guinea
[3]Field epidemiology training program Resident advisor, AFENET, Guinea

Introduction: Of the 28610 confirmed cases of Ebola Virus Disease and 11308 deaths recorded during the Ebola outbreak between 2014 and 2016 in West Africa, 3811 (13%) confirmed cases and 2543 (22%) deaths were recorded in Guinea. Since the occurrence of the Ebola epidemic in the Boké region, no data analysis was done to characterize the cases to guide the ministry during future outbreaks hence the description of this profile.

Methods: A descriptive analysis was performed. The National health security agency of the Ministry of health database was used. The WHO definitions of suspected, probable and confirmed cases were adopted. Data were analyzed using EPI-Info 7.2 and Excel. Proportions, ratios, incidence, median and ranges were calculated.

Results: There were 67 laboratory-confirmed and 23 probable cases. Median age: 30 (0 to 85) years. Were more affected: 50 years and older with a cumulative incidence of 10 cases/100,000 inhabitants followed by 30 to 49 years old with 7 cases/100,000 inhabitants. Housewives: 11 (12%) and health care workers: 6 (7%) were most representative. Cumulative incidence was highest in the prefecture of Boffa with 9 cases/100,000 inhabitants followed by Fria with 8 cases/100,000 inhabitants and Boké with 4 cases/100,000 inhabitants. All of these areas were large conglomerations, two of which (40%) are mining areas and one (20%) is a fisherman.

Conclusions: Housewives, health care workers, mining areas and fishermen were the most affected by the outbreak due to the movement of the population. We recommended the correct use of personal protective equipment by health care workers, define the case definition algorithm for early detection of cases, strengthen surveillance at the coastal level, carry out vaccination among high-risk persons such as housewives and health care workers.

Biography

Dr. Fatoumata Doumbouya has a master in Field Epidemiology Training Program (FETP) from the Ki-Zerbo University of Ouagadougou. She has previously completed intermediate and frontline FETP tiers. Currently she is working for the African Field Epidemiology Network (AFENET) as a mentor at frontline and intermediate FETP building capacity of Ministry of Health and Livestock staff to early detection and outbreak response. Prior to this position, she worked for the same organization as a poliomyelitis consultant. Her main role was active case finding for acute flaccid paralysis and other immunization preventable diseases including the coordination of activities vaccination supplement. For the Ministry of Health, Dr. Doumbouya worked at the Boké Regional Health Directorate as the epidemiological surveillance officer. She presented at several international conferences such as AFENET scientific conference 2018 in Maputo, Global TEPHINET scientific conference 2019 in USA and the epidemiology congress of Canada in 2021.

'Warburg effect' controls tumor growth, bacterial, viral infections and immunity - Genetic deconstruction and therapeutic perspectives

Pouysségur J[1,2], Marchiq I[1], Ždralević M[1] and Vucetic M[2]

[1]University Côte d'Azur, (IRCAN), CNRS, France
[2]Department of Medical Biology, Centre Scientifique de Monaco (CSM), Monaco

The evolutionary pressure for life transitioning from extended periods of hypoxia to an increasingly oxygenated atmosphere initiated drastic selections for a variety of biochemical pathways supporting the robust life currently present on the planet.

First, we discuss how fermentative glycolysis, a primitive metabolic pathway present at the emergence of life, is instrumental for the rapid growth of cancer, regenerating tissues, immune cells but also bacteria and viruses during infections. The 'Warburg effect', activated via Myc and HIF-1 respectively in response to growth factors and hypoxia, is an essential metabolic and energetic pathway which satisfies nutritional and energetic demands required for rapid genome replication.

Second, we present the key role of lactic acid, the end-product of fermentative glycolysis able to move across cell membranes in both directions via monocarboxylate transporting proteins (i.e. MCT1/4) contributing to cell-pH homeostasis but also to the complex immune response via acidosis of the tumour microenvironment. Importantly lactate is recycled in multiple organs as a major metabolic precursor of gluconeogenesis and energy source protecting cells and animals from harsh nutritional or oxygen restrictions.

Third, we revisit the Warburg effect via CRISPR-Cas9 disruption of glucose-6-phosphate isomerase (GPI-KO) or lactate dehydrogenases (LDHA/B-DKO) in two aggressive tumours (melanoma B16-F10, human colorectal adenocarcinoma LS174T). Full suppression of lactic acid production reduces but does not suppress tumour growth due to reactivation of OXPHOS. In contrast, disruption of the lactic acid transporters MCT1/4 suppressed glycolysis, mTORC1, and tumour growth as a result of intracellular acidosis.

Finally, we will briefly discuss the current clinical developments of an MCT1 specific drug AZ3965, and the recent progress for a specific *in vivo* MCT4 inhibitor, two drugs of very high potential for future clinical applications against cancers, bacterial and viral pathogens.

Biography

Jacques Pouysségur, CNRS Research Director Emeritus, graduated from an Engineering School in Biochemistry of the University of Lyon, where he obtained his PhD in bacterial genetics in 1972. He spent two years as a post-doctoral scientist at the National Cancer Institute of NIH (USA) and established his own research group in 1978 at the CNRS Biochemistry Centre of the University of Nice. After directing the CNRS Institute of Signalling, Developmental Biology and Cancer Research up to 2008, his team joined the new Research Institute of Cancer & Aging (IRCAN) in Nice and the Biomedical Department of the Scientific Center of Monaco (CSM).

Jacques Pouysségur has previous experience in bacterial and somatic cell genetics, metabolism, Na-H exchanger, pH regulation, G protein-coupled receptors and MAP kinase signalling in the context of growth control in mammalian cells. In the last 25 years his group developed a strong interest in hypoxia signalling, oxygen and nutrient sensing, angiogenesis, autophagy amino-acid transporters, oxidative stress, cancer metabolism, Warburg effect and immune-suppression.

He is member of AACR, EACR, EMBO, the French and European Academy of Sciences and the past President of the International Advisory board of the National Cancer Institute.

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GLOBAL VIROLOGY CONGRESS

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Donor derived hematopoietic stem cell niche transplantation facilitates mixed chimerism mediated donor specific tolerance

Xin Xiao Zheng[1,2], Wensheng Zhang[1,3], Yong Wang[1,3], Fushun Zhong[2], Xinghuan Wang[2], Robert Sucher[4], Cheng-Hung Lin[5], Gerald Brandacher[6], Mario G. Solari[1,3] and **Vijay S. Gorantla[7]**

[1]Department of Plastic Surgery, University of Pittsburgh School of Medicine, USA
[2]Transplantation Medical Center, Zhongnan Hospital of Wuhan University, China
[3]Thomas E. Starzl Transplantation Institute, University of Pittsburgh School of Medicine, USA
[4]Department of Visceral, Transplant, Thoracic and Vascular Surgery, University Hospital Leipzig, Germany
[5]Department of Plastic and Reconstructive Surgery, Chang Gung Memorial Hospital, Chang Gung University College of Medicine, Taiwan
[6]Department of Plastic and Reconstructive Surgery, Johns Hopkins University School of Medicine, USA
[7]Departments of Surgery, Ophthalmology and Bioengineering, Institute for Regenerative Medicine, Wake Forest School of Medicine, USA

Compelling experimental evidence confirms that the robustness and longevity of mixed chimerism (MC) relies on the persistence and availability of donor-derived hematopoietic stem cell (HSC) niches in recipients. Based on our prior work in rodent vascularized composite allotransplantation (VCA) models, we hypothesize that the vascularized bone components in VCA bearing donor HSC niches, thus may provide a unique biologic opportunity to facilitate stable MC and transplant tolerance. In this study, by utilizing a series of rodent VCA models we demonstrated that donor HSC niches in the vascularized bone facilitate persistent multilineage hematopoietic chimerism in transplant recipients and promote donor-specific tolerance without harsh myeloablation. In addition, the transplanted donor HSC niches in VCA facilitated the donor HSC niches seeding to the recipient bone marrow compartment and contributed to the maintenance and homeostasis of stable MC. Moreover, this study provided evidences that chimeric thymus plays a role in MC-mediated transplant tolerance through a mechanism of thymic central deletion. Mechanistic insights from our study could lead to the use of vascularized donor bone with pre-engrafted HSC niches as a safe, complementary strategy to induce robust and stable MC-mediated tolerance in VCA or organ transplantation recipients. Indeed, in a non-human primate allograft model that combined kidney and vascularized osteomyocutaneous allograft transplantation, our preliminary results support that the vascularized VOMA facilitate a stable MC and induce tolerance towards combined renal-VOMA allografts.

Biography

Dr. Zheng has made original and significant contributions to the field of the basic mechanisms and therapeutic strategies that generate and maintain peripheral tolerance. In addition, Dr. Zheng has contributed, in a significant fashion, to the design, synthesis, and investigation of dozens of novel fusion proteins.In 2004 and 2007 he has established a Protein Therapeutic Core within the Transplantation Center of BIDC of Harvard Medical School and Thomas E. Starzl Transplant Institute of University of Pittsburgh Medical Center respectively.

Currently, Dr. Zheng's researchs on composite tissue transplantation tolerance have shed new insights into allograft tolerance. The novel data of the roles of donor vascularized bone marrow stem cell niches in mixed chimerism and allograft tolerance have led to a novel strategy to induce organ transplant tolerance. Moreover, Dr. Zheng has extended his research into the field of adipose stem cell and led to a clinic trail of adipose stromal vascular faction (SVF) therapy for osteoarthritis.

Comparative characterization of bispecific antibodies with different molecular formats

Wen Jin Wu

Division of Biotechnology Review and Research 1, Office of Biotechnology Products, Office of Pharmaceutical Quality, Center for Drug Evaluation and Research, U.S. Food and Drug Administration, USA

We generated two IgG1-like bispecific antibodies (BsAbs) that have different molecular formats, symmetrical DVD-Ig and asymmetrical knob-in-hole (KIH), targeting the same antigens, EGFR and PD-L1. We compared some key quality attributes and biological activities of these two formats of BsAbs. While both formats of BsAbs bound EGFR and PD-L1, the binding affinity of the KIH format was weaker than the DVD-Ig format in Biacore binding assays. Both DVD-Ig and KIH BsAbs had similar ELISA and cell surface binding activities, comparable to mAbs. Results showed that anti-EGFR/PD-L1 BsAbs exhibited *in vitro* and *in vivo* antitumor proliferation activity, but there was a difference in the potencies of the respective BsAb formats (DVD-Ig and KIH) when different cells or assays were used. This study provides evidence that the potency of the BsAbs targeting the same antigens can be affected by the respective molecular features, and selection of appropriate cell lines and assays is critically important for the assay development and potency testing of BsAbs.

Biography

Dr. Wen Jin Wu is a Senior Investigator in Office of Biotechnology Products (OBP), Center for Drug Evaluation and Research (CDER) at FDA. He earned his M.D. from Wannan Medical College, China, and his PhD from Cornell University. Dr. Wu was recruited as a Principal Investigator in Division of Monoclonal Antibodies, OBP at FDA in 2004. In addition to the regulatory duty as a product quality reviewer, Dr. Wu directs an independent research program at FDA. His laboratory studies the roles of ERBB family receptors in breast cancer progression and HER2-targeted antibody therapeutics and immune checkpoint inhibitor. His laboratory designs and produces different molecular formats of bispecific antibodies using genetic engineering approaches, characterizes bispecific antibodies using physiochemical and biological methods, and develops appropriate bioassays for bispecific antibodies. He has published research papers in highly reputed journals, including Journal of Biological Chemistry, Nature, Cell, Molecular Cancer Therapeutics, Cancer Research, mAbs, Cancers and has been invited to deliver speeches in the national and international conferences.

Trained immunity underlies persistent inflammation in ART-treated HIV-1 infection

Michael Bukrinsky[1], A. Murphy[2] and **D. Sviridov[2]**

[1]The George Washington University, USA

[2]Baker Heart and Diabetes Institute, Australia

Anti-retroviral therapy (ART) suppresses HIV-1 replication and restores immune functions, transforming HIV infection from an acute lethal illness to a manageable chronic disease. However, infected individuals remain at high risk of developing non-AIDS co-morbidities, such as cardio-vascular or neurocognitive disease. One of the key causative factors in these co-morbidities is chronic inflammation. However, the mechanisms responsible for persistent inflammation in infected individuals are not fully characterized. We propose that a significant contributor to inflammation is an epigenetic change in myeloid cells, induced by extracellular vesicles (EVs) carrying the HIV protein Nef. This hypothesis is based on our finding that Nef EVs induce a pro-inflammatory phenotype in differentiating myeloid cells, resulting in overresponsiveness of monocyte-derived macrophages to inflammatory stimuli. Importantly, this inflammatory memory persists for a long time in the absence of Nef, as demonstrated by our experiments with bone marrow transplantation. Moreover, analysis of monocytes from ART-treated HIV-infected individuals demonstrated metabolic changes consistent with those found in Nef EV-treated cells and associated with inflammatory memory. This novel hypothesis suggests that HIV cure may require more than elimination of HIV reservoirs. Reversal of epigenetic changes responsible for inflammation should also be a goal.

Biography

Dr. Bukrinsky is Professor of the Department of Microbiology, Immunology & Tropical Medicine and Professor of Biochemistry and Molecular Biology at The George Washington University School of Medicine. He is also Adjunct Professor at the Moscow State University in Moscow, Russia. He graduated from the 2nd State Medical School in Moscow, Russia, and did his PhD at the Institute of Molecular Biology in Moscow, defending his thesis in 1984. Dr. Bukrinsky is a world-recognized expert on HIV biology and pathogenesis, having published over 200 articles, including publications in Science, Nature, PLoS Biology, Cell Reports and PNAS. He is an author on 14 US patents. Dr. Bukrinsky is a fellow of the American Heart Association. He is an Editor-in-Chief of the Open AIDS Journal and a member of many Editorial Boards. Dr. Bukrinsky mentored a number of graduate and post-graduate HIV researchers from around the world.

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Losartan induced angioedema

Venkata Vedantam, Magacha M. Hezborn and **Neethu Vedantam**

Department of Internal Medicine, East Tennessee State University, USA

Angiotensin converting enzyme inhibitors (ACEI) and Angiotensin Receptor Blockers (ARBs) are commonly used in the management of hypertension and cardiovascular diseases. Although angioedema due to ACEIs is common, there are only few cases of angioedema associated with ARBs, since they act only at the receptors and has no effect on levels of bradykinin. Here we present the case of angioedema in a male taking losartan, after he developed acute kidney disease (AKD).

A 60-year-old male with history of resistant hypertension on losartan, clonidine, chlorthalidone, and amlodipine presented to the Emergency Department with progressive swelling of his face, lips, and tongue without urticaria. Patient was intubated for airway protection after he failed to respond to steroids, antihistamines, and epinephrine. Upon extubation, patient stated that he was recently diagnosed with Rapidly Progressive glomerulonephritis after he underwent a kidney biopsy for an acute kidney disease. The only medication change was addition of low dose prednisone for his kidney disease. He denied any medication changes except for addition of prednisone, denied history of hereditary angioedema, nor use of ACEis or NSAIDs. The probability of losartan induced angioedema was assessed using Naranjo Adverse Drug Reaction Probability Scale which eliminated correlation of angioedema to other medications except with losartan. Patient was diagnosed with losartan-induced angioedema in setting of AKD and losartan was discontinued at discharge. Patient was educated not to take any ACEI/ARBs in future.

Although angioedema due to ARBs was negligible when first approved, with continued use severe cases were reported. However, the exact prevalence remains unknown. Risk factors include use of NSAIDS, AKI, African American race and previous angioedema with ACEI. Despite rarity of this side effect, widespread use of ARBs should make physicians vigilant, and caution should be exercised in substituting ARBs for patients who had a history of angioedema with ACEIs.

Biography

I am an Assistant Professor in the department of Internal Medicine at East Tennessee State University and an Associate Program Director for the department. I have received my medical degree from ASRAM Medical College, India in the year 2015 an completed my Internal Medicine Residency from East Tennessee State University in the year 2019. Subsequently I worked as a hospital medicine physician in rural Tennessee for two year before joining as Assistant Professor in department of Interna Medicine at East Tennessee State University. I work in the hospital, teaching residents and medical students, conduct our weekly grand rounds at our educational conferences, design academic curriculum for residents and organize research clubs, Journal clubs and Jeopardy competitions for the residents. I won the 'Faculty of the Year award' for the year 2022-23.

A case report of diffuse alveolar hemorrhage coexisting with immunoglobulin A (IgA) nephropathy

Michael Kolman, Shen Song, Tina Han, Nahren Asado and **Eli D. Ehrenpreis**

Advocate Lutheran General Hospital, USA

Immunoglobulin A (IgA) nephropathy is the most common cause of primary glomerulonephritis worldwide. IgA vasculitis (formerly known as Henoch-Schonlein purpura) typically presents with IgA nephropathy on renal biopsy in addition to extrarenal symptoms like purpura, abdominal pain, and arthritis. Diffuse alveolar hemorrhage (DAH) is the most common pulmonary complication, but this is rarely seen. In this case report, we describe a 35-year-old male with chronic untreated hepatitis B infection who presented with pulmonary-renal syndrome. He was found to have clinical findings of DAH and concomitant IgA nephropathy on renal biopsy, without having any other typical manifestations of IgA vasculitis. This shows that IgA nephropathy should be considered in the differential diagnosis of DAH and emphasizes the importance of a renal biopsy in patients presenting with pulmonary-renal syndrome.

Biography

I am a first-generation US citizen. My parents and grandparents came to the USA in the late 1970's from Odessa, Ukraine. I have wanted to be a physician since I was a kid, and I have now begun my fellowship in Nephrology at RUSH University Medical Center in Chicago, IL. I am married to a woman that I went to high school with and have a dog that I love more than anything in the world.

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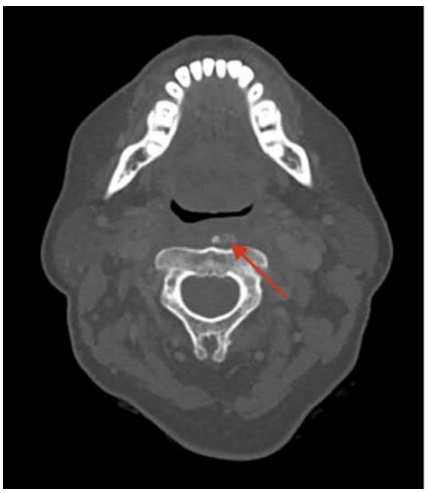
An unusual cause of fever, neck pain, and neck stiffness: Acute Q1 calcific tendinitis of the Longus Colli muscle

Douglas Rappaport MD[2], Isabella Reitz BS[1] and Christopher Allen BS[1]

[1]*Mayo Clinic Hospital Alix School of Medicine, USA*
[2]*Department of Emergency Medicine, Mayo Clinic Hospital, USA*

Background: Acute calcific tendinitis (ACT) of the longus colli muscle (LCM) is an inflammatory response due to deposition of calcium hydroxyapatite crystals. It is typically correlated with whiplash and overuse injuries. A common presentation of this inflammatory response is acute but progressive neck pain. It is a rare but important cause of neck pain that should be considered on a differential diagnosis when distinguishing between life-threatening conditions and non-life-threatening causes of neck pain.

Case Report: A 51-year-old female presented to the Emergency Department complaining of a mild sore throat which progressed to acute neck pain and stiffness. She also reported fatigue, fever, myalgias, and nausea. In the ED, the patient was tachycardic, hypertensive, and mildly febrile with normal oxygen saturation. Examination revealed meningismus and was negative for lymphadenopathy, oropharyngeal findings, and neurologic deficits. Laboratory studies were significant for leukocytosis. CT neck was obtained and was notable for calcification of the superior left longus colli muscle with prevertebral and retropharyngeal space edema along the muscle body.



An x-ray of a human jaw

Self-assembling EABR virus-like particles as a platform technology for hybrid mRNA vaccines

Magnus Hoffmann and **P. Bjorkman**

California Institute of Technology, USA

During the COVID-19 pandemic, mRNA vaccines have emerged as an ideal platform for rapid-response vaccine development due to their fast, scalable, and adaptable manufacturing properties. Clinical studies demonstrated that mRNA vaccines are highly effective, preventing >90% of symptomatic and severe SARS-CoV-2 infections. However, vaccine-induced antibody responses are less effective against SARS-CoV-2 variants of concern (VOCs), and antibody titers markedly contract over time requiring periodic booster shots. We developed a novel hybrid mRNA vaccine technology that genetically encodes self-assembling virus-like particles (VLPs), thereby combining attributes of mRNA- and protein nanoparticle-based vaccines. VLP assembly is induced by inserting a short ESCRT- and ALIX-binding region (EABR) into the cytoplasmic tail of the SARS-CoV-2 spike protein that recruits cellular proteins from the endosomal sorting complex required for transport (ESCRT) pathway. Immunizations with mRNA encoding a SARS-CoV-2 spike-EABR construct elicited superior binding and neutralizing antibody responses against original and variant SARS-CoV-2 compared to conventional spike mRNA and purified spike protein nanoparticles in mice. This suggests that dual presentation of spike antigens on cell surfaces and released VLPs promotes B-cell stimulation, thereby mimicking natural infection and combining features of mRNA- and protein-based immunogens.

Biography

Dr. Hoffmann is an independent research fellow at the California Institute of Technology. Based on his graduate work in Pamela Bjorkman's laboratory at Caltech, he received the Milton and Francis Clauser Prize for the best PhD thesis across all disciplines, and he was awarded an NIH Director's Early Independence Award to launch his own laboratory as an independent research fellow at Caltech. Dr. Hoffmann's research focuses on the development of innovative vaccine technologies and gaining a deeper understanding of the immunological mechanisms that shape vaccine-induced immune responses. His laboratory recently published a preprint describing the EABR technology, an innovative approach to genetically encode nanoparticles. This vaccine platform combines features of mRNA- and protein nanoparticle-based vaccines resulting in superior neutralizing antibody responses against original and variant SARS-CoV-2 in mice.

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Unlocking viral nanomechanics: Atomic-detail mesh models for simulating capsid behavior

Mauricio Carrillo-Tripp[1], César Roberto Hernández-Urquizu[1], Jorge López-Ruiz[2], José Luis Alonzo Velázquez[2], Salvador Botello-Rionda[2] and **Rafael Herrera-Guzmán[2]**

[1]CINVESTAV, México
[2]CIMAT, México

Accurate modeling of viral capsids is critical to understanding their physical properties and mechanics. Recently, we developed two methods to generate structured volumetric meshes from atomic data. CapsidMesh [10.1002/cnm.2991] is an algorithm leveraging icosahedral symmetry to produce meshes capturing the arrangement of capsid proteins. By assigning properties to individual mesh elements, CapsidMesh enabled finite element simulations of nanoindentation experiments used to estimate elastic moduli and stresses. Results demonstrated CapsidMesh's ability to reproduce capsid anisotropic features. However, computational cost increases exponentially with higher mesh resolution. OctreeMesh [10.1016/j.matcom.2022.06.017] introduced an octree-based approach integrating high-performance computing to accelerate mesh generation, orders of magnitude faster than CapsidMesh. Both techniques generate structured volumetric meshes from atomic data, enabling mechanical simulations of viral capsids. The nanoindentation and shearing numerical simulations reproduce the expected symmetry behavior and stresses. These meshing strategies provide nanoscale fidelity absent in other continuum modeling methods, capturing complex biomolecular topology unachievable with coarser approaches. The ability to quickly mesh large biomolecular systems promises insights into nanomechanics and informs the development of multiscale models spanning atoms to the cellular milieu. Further refinements will incorporate dynamic meshes adapting to conformational changes over time. As experimental techniques probe ever smaller scales, robust atomic-detail meshes will become increasingly vital.

Biography

Mauricio Carrillo-Tripp graduated in Physics and got a PhD in Molecular Biophysics. In 2010 he founded the Biomolecular Diversity Laboratory (bmd) in CINVESTAV, México [tripplab.com]. Since then, he is an associate professor and leader of the bmd lab, a multidisciplinary group of scientists interested in understanding the fundamental Structure-Dynamics-Function relationship observed in biomolecules and the role their diversity plays in the mechanisms of complex biological processes through a robust Theoretical-Computational-Experimental approach. Some of the biological models used to study Biomolecular Diversity are viruses, antibiotics, proteins, and lipid membranes. An integrative approach is used to generate basic knowledge and applications in biotechnology and biomedicine, leveraging methods, techniques, and tools from Molecular Biophysics, Multi-Scale Molecular Modeling, Molecular Dynamics, Bioinformatics, Molecular Biology, Structural Biology, High Performance Computing, Biotechnology and Genetic Engineering, Information Systems and Software Development.

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Histological characteristics of chronic allergic rhinitis versus non allergy: Is there a difference in the remodelling?

Tamara Acosta Castillo[3], Carlos Ríos Deidán[1], Maria Soledad Reyes[2], Edgar Escalante Fiallos[4] and **Diana Villacrés Silva[4]**

[1]Otorhinolaryngology Department of Medical Sciences Faculty, Central University of Ecuador, Ecuador
[2]Pathology Unit, Ecuadorian Institute of Social Security Sangolquí, Ecuador
[3]Otorhinolaryngology Unit, IESS El Batán, Ecuador
[4]Otorhinolaryngology Unit, Carlos Andrade Marin Specialties Hospital, Ecuador

Demonstrate the histological remodeling changes in the turbinates, identify the frequency of the two forms of rhinitis in the samples studied and determine the remodeling differences found in the two variants. Patients attended an otolaryngology service at the Social Security Hospital of city Sangolqui-Ecuador from February 2016 to June 2017. The allergic variant was determined when eosinophils were found by higher magnification field and non-allergic when they were not found in the submucosal segment. Epithelial, inflammatory, and stromal markers were analyzed. One hundred twenty histopathological samples were analyzed, 75% presented allergic rhinitis, the age averaged 36.2 years. When we compared between the allergic and non-allergic variants: epithelial and stromal markers we had significant differences, as well as between each of its components; except fibrosis. In relation to the inflammatory pattern, there were significant differences between the number of mast cells and stromal markers with eosinophils>10 by field. The allergic type corresponded to 75% of patients with persistent severe rhinitis who underwent turbinectomy. Regarding remodeling, there was a statistically significant difference in favor of the allergic variant. Eosinophilia greater than 10 was directly related to mastocytosis and subepithelial edema.

Table 1 Organization of qualitative data to carry out statistical calculations

Epithelial markers											
MB thickening				Globet cells				Squamous metaplasia			
0	x	xx	xxx								
< 5 µm	5–10 µm	10–15 µm	> 15 µm	0–25	26–50	51–75	76–100	Absent	Mild	Moderate	Marked
0	1	2	3	0	1	2	3	0	1	2	3
Stromal markers											
Edema								Fibrosis			
Absent		Mild		Moderate			Marked	Present			Absent
0		1		2			3	0			1
Inflamatory markers											
Eosinophil number				Mast cells number				Eosinophil cumulus			
0	x	xx	xxx								
	< 10 eos	10–20 eos	> 20 eos	0	X	XX	XXX	Present			Absent
0	1	2	3	0	1	2	3	0			1

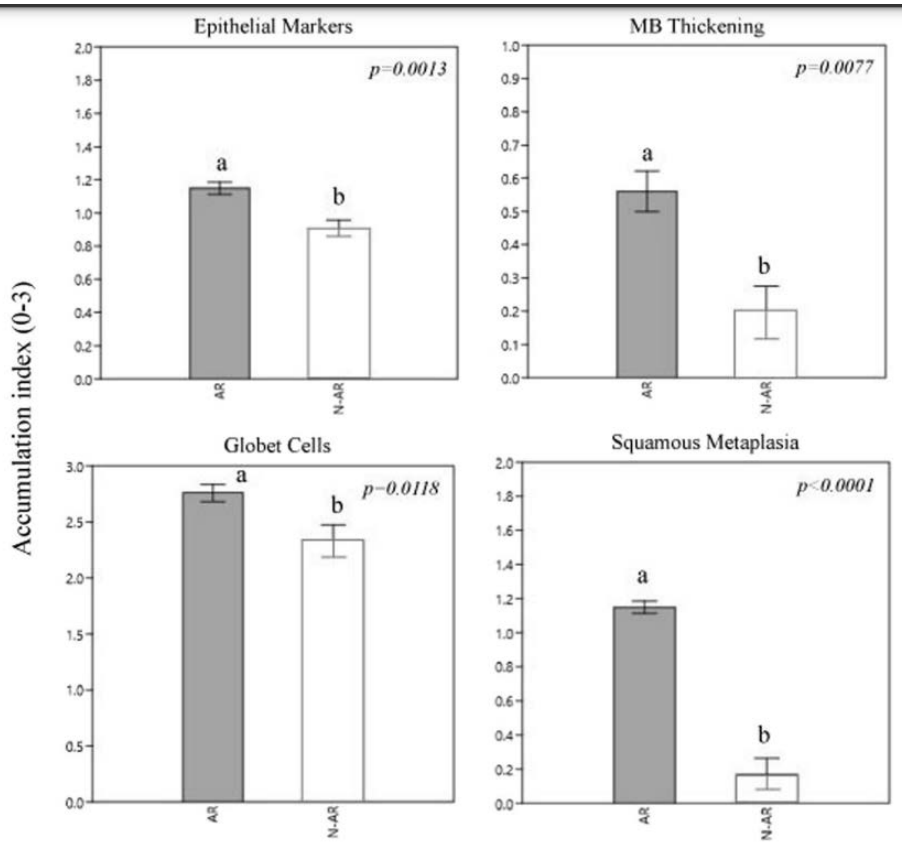


Fig. 1 Epithelial markers and their comparative analysis between allergic and non-allergic after Mann Whitney U test

Baseline severity and inflammation would influence the effect of Simvastatin on clinical outcomes in Cirrhosis patients

Alberto E. Muñoz[1,3], Florencia Pollarsky[1], Mónica Marino[1], Mariano Cartier[1], Carlos Míguez[1], Enrique G. Rodger[1], Horacio Vázquez[2], Pablo Salgado[3], Daniel Álvarez[4] and **Gustavo Romero[1]**

[1]University of Buenos Aires, Argentina
[2]Hospital of Gastroenterology, Argentina
[3]Institute of Public Health Research, University of Buenos Aires, Argentina
[4]Favaloro University, Argentina

Background: Simvastatin administration to decompensated cirrhosis patients improved Child-Pugh (CP) at the end of a safety trial (EST).

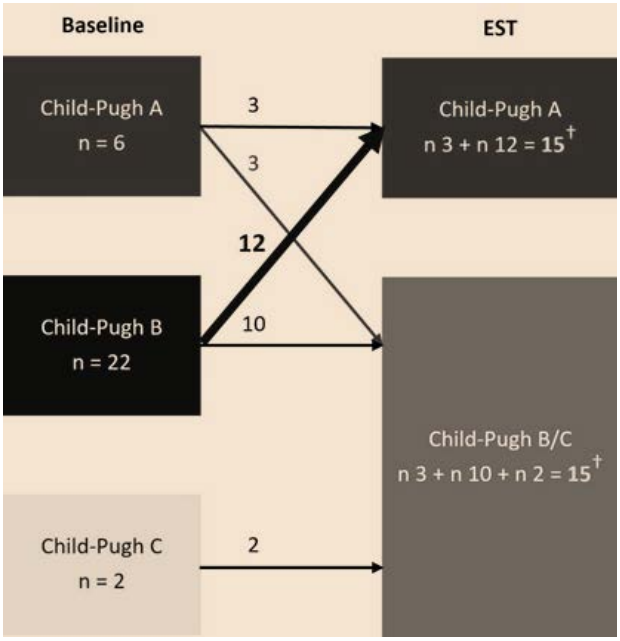
Aim: To evaluate whether simvastatin reduces cirrhosis severity through a secondary analysis of the safety trial.

Methods: Thirty patients CP class (CPc) CPc A (n = 6), CPc B (n = 22), and CPc C (n = 2) received simvastatin for one year. Primary endpoint: cirrhosis severity. Secondary endpoints: health-related quality of life (HRQoL) and hospitalizations for cirrhosis complications.

Results: Cirrhosis severity decreased baseline versus EST only across CP score (7.3 ± 1.3 versus 6.7 ± 1.7, P = 0.041), and CPc: 12 patients lessened from CPc B to CPc A, and three patients increased from CPc A to CPc B (P = 0.029). Due to cirrhosis severity changes and differences in clinical outcomes, 15 patients completed the trial as CPc AEST and another 15 as CPc B/C (Figure). At baseline, CPc AEST showed greater albumin and high-density lipoprotein cholesterol concentrations than CPc B/C (P = 0.036 and P = 0.028, respectively). Comparing EST versus baseline, only in CPc A_{EST}, there was a reduction in white-cell blood (P = 0.012), neutrophils (P = 0.029), monocytes (P = 0.035), and C-reactive protein (P = 0.046); an increase in albumin (P = 0.011) (Table); and a recovery in HRQoL (P < 0.030). Finally, admissions for cirrhosis complications decreased in CPc A_{EST} versus CPc B/C (P = 0.017).

Conclusions: Simvastatin would reduce cirrhosis severity only in CPc B at baseline in a suitable protein and lipid milieu, possibly due to its anti-inflammatory effects. Furthermore, only in CPc A_{EST} would improve HRQoL and reduce admissions by cirrhosis complications. However, as these outcomes were not primary endpoints, they require validation.

Figure. Cirrhosis Severity According to the Distribution of Patients in Child-Pugh Classes at Baseline and the End of the Simvastatin Safety Trial.



Note. † P = 0.029 versus baseline. EST: at the end of the simvastatin safety trial.

Table. Systemic Inflammatory Markers at Baseline and the end of the Simvastatin Safety Trial in the Whole Group, Child-Pugh Class A and Child-Pugh Classes B/C

	Baseline	EST †	P
Whole group	n = 30	n = 30	
White-cell blood count, x 10^9/L	6.58 (2.35)	6.08 (2.84)	0.361
Neutrophils, x10^9/L	4.00 (1.75)	3.77 (2.39)	0.617
Monocytes, x10^9 /L	0.57 (0.25)	0.54 (0.24)	0.408
C-reactive protein, mg/L ‡	2.75 (1.80-9.50)	2.80 (1.20-4.75)	0.084
Albumin, g/dL	2.96 (0.54)	3.27 (0.61)	0.003
Child-Pugh class A	n = 15	n = 15	
White-cell blood count, x 10^9/L	7.56 (1.72)	6.42 (1.54)	0.012
Neutrophils, x10^9/L	4.53 (1.61)	3.70 (1.32)	0.029
Monocytes, x10^9 /L	0.63 (0.29)	0.52 (0.20)	0.035
C-reactive protein, mg/L ‡	4.90 (2.18-11.75)	2.90 (1.65-4.23)	0.046
Albumin, g/dL	3.16 (0.50)	3.63 (0.56)	0.011
Child-Pugh classes B/C	n = 15	n = 15	
White-cell blood count, x 10^9/L	5.80 (2.15)	5.95 (3.49)	0.864
Neutrophils, x10^9/L	3.47 (1.77)	3.85 (3.17)	0.644
Monocytes, x10^9 /L	0.52 (0.19)	0.56 (0.28)	0.550
C-reactive protein, mg/L ‡	2.40 (1.08-3.30)	1.90 (0.98-5.13)	0.765
Albumin, g/dL	2.76 (0.50)	2.90 (0.42)	0.094

NOTE. † EST: at the end of the simvastatin safety trial. Descriptive data are mean (standard deviation) and ‡ median (interquartile range).

Biography

Medical Doctor: School of Medicine, Universidad de Buenos Aires. 1982.

Resident Physician: Medical Clinic Service. Hospital Aeronáutico Central. 1983-1986

Specialist in Gastroenterology: Sociedad Argentina de Gastroenterología. 1988

Specialist in Internal Medicine: Ministerio de Salud y Acción Social. 1996

Specialist in Hepatology: Sociedad Argentina de Hepatología. 2014

Member: Sociedad Argentina de Hepatología.

Awards:

- Asociación Interamericana de Gastroenterología (AIGE) / Solvay Pharma, 1997
- Dr. Bonorino Udaondo. Sociedad Argentina de Gastroenterología. 2006
- Prof. Dr. Rubén Terg. Sociedad Argentina de Hepatología. 2018

Fellowships:

Fellowship of Institut Catalá de Cooperació Iberoamericana. Liver Unit, Hospital Clínic, Barcelona, Spain. 1990.

Current Position:

- **Attending Physician:** Hepatology Section, Hospital Dr. Carlos Bonorino Udaondo.
- **Member:** Instituto de Investigaciones en Salud Pública, Universidad de Buenos Aires.

Medical Meetings: One hundred seventy-eight

Chairman in Medical Meetings: Fourteen

Speaker in Medical Meetings: Thirty

Papers Presented in Medical Meetings: Sixty-five

Papers Published in Journals: Thirty-four

Chapters in Books: Twelve

Pharmaceutical Industry Clinical Trials: Twenty-two

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Viruses as a versatile tool: From the discovery of new species in the environment to a framework for monitoring human health

J. M. Manrique and **L. R. Jones**

University National of Patagonia San Juan Bosco, National Council for Scientific and Technical Research (CONICET), Argentina

While many viral agents are natural components of microbial communities, some can be detected in the environment due to human-environment cycles of transmission. We set up viral monitoring as a tool for studying natural as well as human-excreted viruses. Viral particles can be concentrated, followed by analyses of viral genomes. Furthermore, cells can be immobilized onto a solid substrate, allowing to study both the host-cell and intracellular viral genomes. In this work, we exemplify this type of analyses by describing studies of natural viruses from the uncharted Engaño Bay in the Argentine Sea, and our experience monitoring human viruses present in wastewaters, including the new Coronavirus SARS-CoV-2. The Engaño Bay studies revealed the absence of cyanobacteria viruses, and uncovered the existence of several *Phycodnaviridae* species, including species and lineages that are unique from our study region. Wastewaters monitoring showed that adenoviruses are steadily detected in time, while *Polyomavirus*, *Rotavirus*, and *Norovirus* are detected intermittently. Hepatitis A virus was not detected, which we attribute to the inclusion of the vaccine in the Argentine vaccination schedule. At the beginning of the SARS-CoV-2 pandemic, in July 2020, the virus was undetectable in wastewater, which could be explained by the remoteness of our study region. However, we began to detect the virus that year in October. Using deep sequencing, we observed that the SARS-CoV2 viruses excreted by the population in October 2020 were conspicuously different than those excreted in January 2022, after intensive circulation and vaccination. The 2022 viruses presented a dense pattern of non-synonymous mutations concentrated in the S gene, while the 2020 ones presented more mutations, but these were dispersed all along the genome. We believe that this could respond to (i) adaptation to the human population during the early viral spread, (ii) vaccine-induced immunological pressure, or (iii) combination of both factors.

Biography

Julieta Marina Manrique is an Independent researcher at the National Scientific and Technical Research Council in Argentina and an Associate Professor of Virology from the Faculty of Natural and Health science from the National University of Patagonia San Juan Bosco, Trelew. Julieta works at the Laboratory of Virology and Molecular Genetic (LVGM), from the same institution. After receiving her degree of biochemist from the University of Buenos Aires, she dedicated to the molecular study of microorganism. She joined to the Laboratory of Dr. Affranchino and Gonzalez to perform studies on the molecular assembly of HIV. After receiving her PhD from the University of Buenos Aires, she joined Dr. Desrosiers Laboratory at Harvard University, where she focused on the development of a viral vector as vaccines for HIV. Later, she moved to Patagonia to fund the LVGM, along with Dr. Leandro Jones, where she presently develops her studies on molecular microbiology focusing on environmental virology.

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PRODERMA skin cancer screening search at Jornada del Lunar activity to Salvadorean population

Silvia Anett Mejía Rodríguez[1], Jeannie Sanchez[1], David Zepeda[1], Katia Parada[1], Ana Ely Guevara[1], Evelyn Cruz[1,3], Mariela Monge[1], Alexandra Maza[1], Marlyn Osegueda[1], Kenya Acosta[1], Jaime Martínez[1,2], Daysi Pinto[1], Diana Figueroa[1], Roberto Gracias[1], Rocío Díaz[1], Mario Sion[1], Elia Espinoza[1], Sergio Hasbun[1], Irma Gómez[1], Luis López[1], José Raúl Gonzalez[1], Ethel Rovira[1], Rosaura Ramos[1], Francisco Alabi[2], José Exequiel Delgado[2], José Victor Rodríguez Mendoza[2] and **Rosario Zavaleta[2]**

[1]PRODERMA, El Salvador
[2]Hospital Nacional Zacamil "Juan José Fernández", El Salvador
[3]Clinica Monseñor Eduardo Alas, El Salvador

Objectives: PRODERMA´s goal, a non-profit organization, is to search and find skin cancer types that are in the general population not aware of and who might have not consulted for various reasons. Guide the population to skin cancer prevention with the use of solar protection and early consultation. Also, referral to the nearest national surgery dermatology center for their corresponding cancer treatment.

Scope: The vulnerable general population that may not have access to a dermatology evaluation.

Results: Results of all four geographic search sites and the results of the skin cancer search will be done on the 23rd of July to establish which cancer was the most frequent, localization area, anatomic region, age, and gender.

Methods: Include dermoscopy evaluation by dermatologists and dermatology residents of our country distributed in 4 states documenting data. Random screening of the population will be done by filling out a worksheet with the information needed. Posterior evaluation and calculation of the results will be done.

Conclusion: Will be done after the information is calculated.

Figure 1. Will be provided upon conclusions.

Table 1: will be provided upon conclusions.

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Advanced methods to augment intelligence in vaccine post-market surveillance

T. Botsis, J. Spiker and **K. Kreimeyer**

Johns Hopkins University, USA

Pharmacovigilance broadly refers to the detection and evaluation of potential safety signals following the use of medical products. These vital tasks require pulling data from multiple sources, including post-market safety reports generated by consumers, manufacturers, and physicians and eventually submitted to spontaneous reporting systems managed by regulatory agencies; electronic health records; claims data; data registries; observational studies on specific safety topics; clinical trials collecting adverse event information; and existing knowledge, including biomedical literature and product labels. It is widely known that data sizes pose significant challenges to the efficient, effective, and rigorous review of the collected information. For example, the post-market submissions to the US Vaccine Adverse Event Reporting System (VAERS) jumped from about 50,000 in 2020 to three-quarters of a million in 2021 when the new COVID-19 vaccines were released to the US market.

Therefore, it is reasonable to discuss applying automated advanced approaches to the post-market safety surveillance of vaccines and other medical products. Importantly, artificial intelligence approaches have already been applied to VAERS reports and further incorporated into decision-support systems. As no automated solution can be perfect, specific assessments of algorithmic performance and correction strategies are required, and humans must always be in the loop to verify the appropriate use of these technologies and scrutinize the automated outputs. We will discuss all these topics by presenting recent research and highlighting key challenges, promising trends, and opportunities for future work.

Biography

Taxiarchis Botsis, MS, MPS, PhD, is an Assistant Professor of Oncology and Medicine at the Division of Quantitative Sciences at The Sidney Kimmel Comprehensive Cancer Center at the Johns Hopkins University. His background lies in Medical Informatics with a focus on precision oncology, natural language processing of clinical texts, normalization and standardization of clinical information, construction of decision support systems, integration of data from multiple sources, generation of efficient and compelling information visualizations, and development of advanced methods and approaches in pharmacovigilance. Among his other funding in these areas, Dr. Botsis has received awards to improve the efficiency and rigor of pharmacovigilance at the US Food and Drug Administration and develop decision-support solutions to enhance clinical trial recruitment, and personalized medicine approaches in precision oncology.

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Proactively preventing future viral epidemics and pandemics

Sunil J Wimalawansar

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The elderly and those with underlying chronic diseases—comorbidities—are highly susceptible to contracting infections, including COVID-19, developing sepsis and complications, and dying from them. The SARS-CoV-2 virus damages pulmonary cells, causing acute respiratory distress syndrome and hypoxia, and endothelial cells, altering clotting mechanisms, causing microvascular thrombosis and micro-embolization. Most of these are from hyperstimulation of the immune system—cytokine storms: thus, vitamin D can prevent these. Approximately 75% of the immune system functions of humans depend on the availability of sufficient amounts of vitamin D [25(OH)D] in the circulation to enter immune cells. The required concentrations above 50 ng/mL are achieved through sun exposure, targeted food fortification programs, and adequate daily/weekly vitamin D supplements. That allows generation of $1,25(OH)_2D$ (non-hormonal calcitriol) intracellularly in peripheral target cells like immune cells, enabling immune cells physiological functions. Latter include autocrine and paracrine signaling and maintaining robust immune systems. During the pandemic, regulators ignored vast published data on vitamin D and repurposed generic agents. Allowing proper doses of vitamin D as preventative and therapeutic measures could have prevented millions of hospitalizations and approximately two million deaths. With this missed opportunity, it is essential to systematically study the published big data using machine-learning systems to extract pertinent aspects of vitamin D in controlling viral infections. This would prevent such mishaps from future viral epidemics and pandemics happening. Governments should make the population sufficient with immunoceuticals□micronutrients, especially vitamin D and others—the most cost-effective intervention to keep the population healthy. The cost of such interventions is minuscule compared to the expenses related to increased hospitalizations. Maintaining a robust immune system improves health, minimizes disease severities and deaths from infections: also reduces healthcare costs. Supposing such a program was utilized in mid-2020, it would have prevented a 50% of hospitalizations, a third of deaths from COVID, and massive healthcare savings. Scientists must proactively use such preventative approaches than relying on conflicted advice from health beurocracy.

Biography

Dr. Wimalawansa, MD, Ph.D, MBA, DSc, is a physician-scientist, researcher, educator, author, innovator, philanthropist, board member, leader, and process consultant. Clinical expertise includes endocrinology, nutrition, vitamin D, disease prevention, metabolic diseases, osteoporosis, CKD, health policies, and social sciences. Former University Professor, Professor of Medicine, Chief of Endocrinology, Metabolism & Nutrition; Professor Physiology-Pharmacology at the Graduate School of Biomedical Sciences. His inventions include vasodilatory CGRP for cardiovascular diseases, once-a-week bisphosphonate, combination therapies, and nitric oxide regimens for osteoporosis. In 1984, developed an intra-operative measurement of hormones during surgical procedures, used worldwide as the standard of care. Received Lifetime Achievement Award (2004) USA Foundation for contributions to science and humanity, and Oscar Gluck International Humanitarian Award (2008). Process consultant, Lean Six-Sigma executive, a board of directors of national and international organizations, and member of scientific review committees NIHIH, VA, DEA, and NASA. Has over 300 publications and eight books and delivered more than 500 invited presentations globally.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Metabolic syndrome among human immunodeficiency virus patients on antiretroviral therapy attending clinic at a district hospital in Ghana

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Metabolic syndrome is a complex disorder represented by a set of cardiovascular risk factors commonly associated with central obesity, hypertension, hyperglycaemia and insulin resistance Studies on the prevalence of metabolic syndrome among patients infected with human immunodeficiency virus (HIV) are very limited in the Ghanaian setting. This study therefore aimed to determine the prevalence rate and clinical factors associated with metabolic syndrome among HIV-infected patients on antiretroviral therapy attending clinic at a district hospital in Ghana.

A quantitative descriptive cross-sectional research design was employed in this study. Data was collected from two hundred and forty (240) participants attending clinic at the HIV/AIDS clinic of Tema General Hospital using the convenience sampling technique. Data collected was analysed with Statistical Package for Social Sciences, version 22.0.

The results showed that the prevalence of metabolic syndrome among the study participants ranged from 17.1% to 27.9%. The prevalence of metabolic syndrome in this study was quiet high, and it affected more than a quarter of the participants. A bivariate analysis to identify the determinants of metabolic syndrome revealed that high triglycerides [OR = 6.44, 95%CI (0.44-9.51), p=0.002], high cholesterol [OR = 4.52, 95%CI (0.21-9.32), p=0.039], duration on antiretroviral therapy for at least 60 months [OR = 2.92, 95%CI (0.76-7.67), p=0.031], and using antiretroviral therapy regimen combination of protease inhibitors and nucleoside reverse transcriptase inhibitors [OR = 1.98, 95%CI (0.29-7.02), p=0.001] were significantly associated with the development of metabolic syndrome.

In conclusion, the study revealed that it is necessary for healthcare professionals to incorporate metabolic syndrome assessment as part of the treatment and management plan for patients receiving antiretroviral therapy.

Biography

Kwabena Opoku-Addai is currently a lecturer at the Department of Nursing and Midwifery of Presbyterian University, Ghana. He is a registered general nurse, holds an MPhil degree in Nursing from University of Ghana, and has over six years experience in teaching various nursing and midwifery courses. He has over four years experience in organizing and conducting research, collecting data, analysing data and reporting on findings. His research interests are diabetes mellitus, HIV/AIDS, non-communicable diseases and endocrine disorders. Kwabena currently has two published research articles in Plos One and Springer, an accepted manuscript yet to be published, and another manuscript under review. He is also an examiner for the Nursing and Midwifery Council of Ghana, a reviewer for a scientific peer reviewed journal published by Elsevier, and an assistant coordinator in charge of research services for the Center of Continuous Professional Development of Presbyterian University, Ghana.

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ACCEPTED ABSTRACTS

Global Virology Congress

September 11-12, 2023

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Unraveling the secrets behind the multidrug resistant tuberculosis treatment outcome in chronic renal failure patients requiring hemodialysis: A systematic review

Grethel N. Hernandez[1], Kofi Seffah[2], Mustafa Abrar Zaman[3], Nimra Awais[4], Travis Satnarine[4], Ayesha Haq[4], Deepkumar Patel[5], Sai Dheeraj Gutlapalli[4], Areeg Ahmed[4] and **Safeera Khan[4]**

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[4]California Institute of Behavioral Neurosciences and Psychology, USA
[5]Richmond University Medical Center, USA

Multidrug-resistant/Rifampicin-resistant tuberculosis (MDR/RR TB) is a global concern, with 450,000 new cases and 191,000 deaths in 2021.

Objectives: To evaluate the therapeutic outcome of multidrug-resistant TB of the lungs in patients who require hemodialysis in terms of successful treatment (cured and treatment completed) and the associated factors to a favourable outcome.

To identify unfavorable treatment outcomes (treatment failed, died, or loss to follow-up) and the underlying associated factors.

Scope: Adults (>19 years old) with chronic kidney disease who needed hemodialysis and had microbiologically confirmed multidrug-resistant pulmonary tuberculosis.

Methods: Conformed to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 Guidelines for this systematic review.

Databases: PubMed, Medline, PubMed Central, Science Direct, Public Library of Science (PLOS), and Google Scholar.

Results and Discussion: We gathered 21,570 studies from the databases between 2013 and 2023, with 30,062 total participants. Eight eligible studies for review.

Diagnostic samples such as sputum and pleural fluid had lower sensitivity rates than tissue samples, leading to delays in diagnosis and treatment and drug resistance.

Tuberculosis-infected patients with severe renal disease (eGFR <30 ml/min) had increased morbidity and mortality.

DOTS strategy reduced morbidities such as hospitalization, pneumonia, and ICU stay > 7 days except for inotropic drug use, ventilator support > 21 days, and death.

Renal-dose adjustment of anti-TB medications significantly reduced these risks.

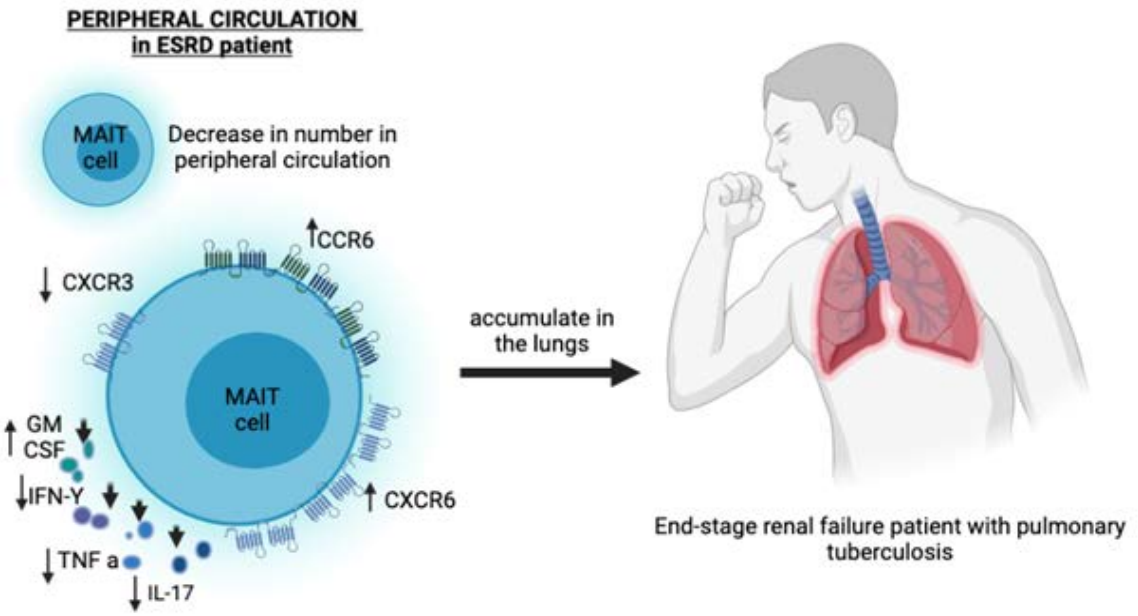

Figure 2: Mucosal-associated invariant T-cell depletion and altered chemokine receptor expression during Mycobacterium tuberculosis infection in end-stage renal failure patient

Conclusion: Controlling comorbidities, ensuring early tuberculosis detection and treatment, detecting drug resistance, and ensuring Directly Observed Treatment, Short Course (DOTS) adherence can reduce these risks.

Due to their altered drug metabolism, therapeutic drug monitoring guideline is recommended to reduce adverse events and mortality.

Additional research is necessary to determine the safety, efficacy, and outcomes of therapeutic regimens in this population with multidrug-resistant pulmonary tuberculosis.

Biography

Grethel conducted several medical missions in her hometown every summer and Christmas season from 2012 to 2015. She was driven by a desire to assist the underserved community in the Philippines. During her Internal Medicine residency, she continued her service by raising public awareness about smoking cessation and COPD. Grethel earned her medical degree from the Far Eastern University Dr. Nicanor Reyes Medical Foundation in 2011. She earned a Bachelor of Science in Medical Technology in 2007 as part of her Pre-Medicine program at the same university. She worked as a primary care physician for three years before completing her Internal Medicine residency training at Premiere Medical Center in Cabanatuan, Nueva Ecija, Philippines. Grethel is a recent mother who enjoys cooking for her family.

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Bidirectional transmission of Infectious Zoonotic Viruses

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Introduction: Pathogens don't recognize global boundaries. Viral pathogens impact human and Wild animal population across the world. The mode of transmission of zoonotic viruses varies depending on the type of the pathogens. Viral pathogens like HIV-1, HIV-2 are transmitted through blood and homosexual or heterosexual routes in the human population. The route of transmission can be bidirectional when there is a close man-monkey interaction as seen in India. My research work on 'HIV-1-like' SIV infecting wild Indian primate species supports this phenomenon.

Objectives: The aim was to explore if viral pathogens are transmitted from humans to wild Indian rhesus monkeys (*Macaca mulatta*) and langurs (*Semnopithecus entellus*) in the natural habitat of forested regions of Rajasthan, given the close man-monkey interaction prevalent in India.

Scope: Investigations of natural viral infection in wild animals are inherently difficult as opposed to research with captive bred animals, housed in the American National Primate Research Centers. Such investigations do not reflect the actual situation that occurs in the wild animal population. At times wild monkeys get aggressive and scratch and bite humans, making transmission of pathogens between men and monkeys by mixing of primate saliva and infected human blood.

Methods Used: The investigation is based on field and laboratory-based studies, carried out in the natural habitat of wild monkeys in India and the laboratory studies in the USA.

Results and Discussion: As shown in the Table and Figure, reverse transmission of HIV-1 from humans to wild Indian occurs in Indian natural habitat.

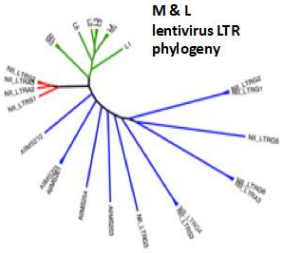
Conclusion: Reverse transmission of HIV-1 like SIV from humans to wild monkeys is demonstrated.

Viral load assay of plasma samples from wild Indian langur (L) and rhesus macaques (M) by quantitative RT-PCR with primers and probe designed from HIV-1 subtype B *gag* region, conducted independently by Virology Core facility, HIV Drug Resistance Program, National Cancer Institute, Frederick, MD (2008).

Samples	Viral load /ml
Langur L2	6930.0
Langur L3	<33
Langur L4	7956.7
Langur L5	880
Langur L6	2346.7
Rh Mac M1	953.3
Rh Mac M2	<33
Rh Mac M3	990.0
Rh Mac M4	<33
Rh Mac M5	1875

Rhesus monkey Rh

Langur (*S entellus*)

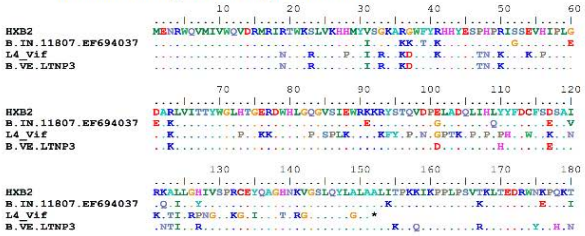


M & L lentivirus LTR phylogeny

Percent sequence divergence between viral genomic regions of reference strain of HIV-1 subtype B (HXB2) and lentiviruses from feral rhesus macaques (M) and langurs (L).

Viral genomic region	% Divergence of lentivirus from langur (L) and Rhesus macaque compared to equivalent sequences of HIV-1 laboratory reference strain, HXB2	
	L	M
Gag p17	6.8	6.7
Gag p24	1.2	1.5
Pol RT	1.8	1.1
Env gp120	11.2	6.7
Env gp41	ND	15.2
Nef	2.3	3.1
Vif	19.4	ND
Vpr	7.8	ND
LTR	4.7	4.1

Vif amino acid alignment of Langur lantivirus L4



Biography

Dr. Jayashree Seema Nandi is an American Virologist of Indian origin. She has extensive international research experience, having worked in India, the UK and the USA. She studied at Pune University, India for Ph.D. degree in Biochemistry and subsequently went to UCL, London for postdoctoral research on Unintegrated HIV DNA. She has extensive expertise in basic science of Infectious viral diseases including HBV, HIV-1, SIVs and Type D simian retroviruses (SRVs), SFV and Influenza virus (IAV), Avian Influenza Virus (AIV) and Zoonotic viral infections of human and Wild animals. Her recent book on '' Global Perspectives of the Transmission of Zoonotic RNA Viruses from Wild Animal Species to Humans" ISBN: 9780443132674, was published by Elsevier as an invited book in June 2023. Despite several hurdles, she has continued with her interest in Virology and Immunology research. Apart from Science, she enjoys poetry, Indian classical music and plays the sitar.

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Understanding peoples' perspective on the barriers to and facilitators of Human Papilloma virus vaccine uptake at three levels in Saskatchewan, Canada patient, provider, and system-level

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[3]Department of Medical Oncology, Saskatchewan Cancer Agency, Canada

Despite a widespread effort, the uptake of HPVV remained suboptimal in some Canadian jurisdictions. The rate of cervical cancer among Canadian women has not declined since 2005. The status quo of the cervical cancer incidence rate coupled with the suboptimal uptake of HPVV is in-part because HPVV's impact on cancer prevention has not been realized adequately by vaccine *providers* and *receivers*. HPV-related disease's infectious nature, its widespread transmission, and the consequent development of *cancer of a preventable origin* have become common knowledge among scientists and public health professionals.

Further exploration of determinants of HPVV uptake (barriers and facilitators) is required to situate contextually appropriate policies around enhancing its uptake.

This study employed a qualitative sequential mixed method inquiry using an Interpretive Description approach grounded in pragmatism. In phase 1, a review[1] was conducted using a systematic approach to establish HPVV uptake determinants and inform the questions on the interview guide used in phase 2. Phase 2 involved data collection by collecting responses to the short online surveys to all patient-level participants and one-on-one semi-structured interviews with the patient, provider and system-level participants. Phase 3 data collection was guided by findings from Phase 1+2 and involved collecting responses on a *detailed online survey* from the patient-level focus group participants; with the system and provider-level participants, follow-up interviews were conducted, followed by a document analysis of the provincial resources on HPVV. All data gathered was transcribed verbatim and analyzed using NVIVO 12.

The study reinforced that it is crucial to understand HPV vaccine uptake factors to combat its suboptimal uptake, as this vaccine carries the potential to prevent HPV-linked cancers. The study identified two key themes as the most important factors in HPV vaccine uptake: 1. Information, awareness and education about HPV infection and vaccine, and 2. Vaccine-related logistics. The study also proposed a theoretical and analytical framework for future analysis of access to care and prevention.

A multi-component intervention with a person-centred approach remains instrumental in enhancing HPV immunization rates, given the inconsistent uptake of HPVV by the population subgroups who voice unique barriers and facilitators. Interventions should target raising HPVV awareness, offering education, and tackling factors related to vaccine logistics. The analysis warrants sub-group analysis with the established immigrants and refugees.

Biography

Dr. Amal Khan is a Physician with a speciality in Population Health and Epidemiology. She has worked on a National Quality Improvement Project under Urban Public Health Network Canada to uncover high- resolution quality improvement targets of investment in under-immunized population groups. Amal is now working as a Manager on a large Quality improvement project with equity lense proposing Model of Care (MoC) for early detection of upper Gastrointestinal cancers on the cancer care continuum. Alongside, Amal, is working as an analyst to support virtual care and remote presence technology utilizing the CNDHE framework incorporating Artificial Intelligence under realm of digital medicine. Amal is passionate about further exploring population health dynamics as a functional proxy of equity in society. Being an elected director at Basic Income Canada Network is a testament to it.

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Intimate intertwining of the pathogenesis of hypoxia and systemic sclerosis: A transcriptome integration analysis

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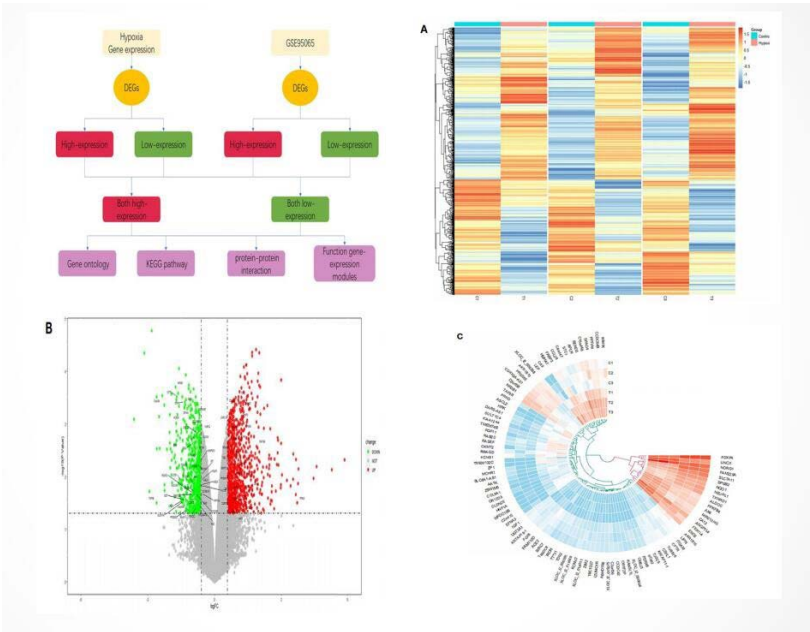
[1]Department of Dermatology, Central South University, China
[2]Department of Anesthesiology, Central South University, China
[3]Department of Dermatology, Hunan Children's Hospital, China

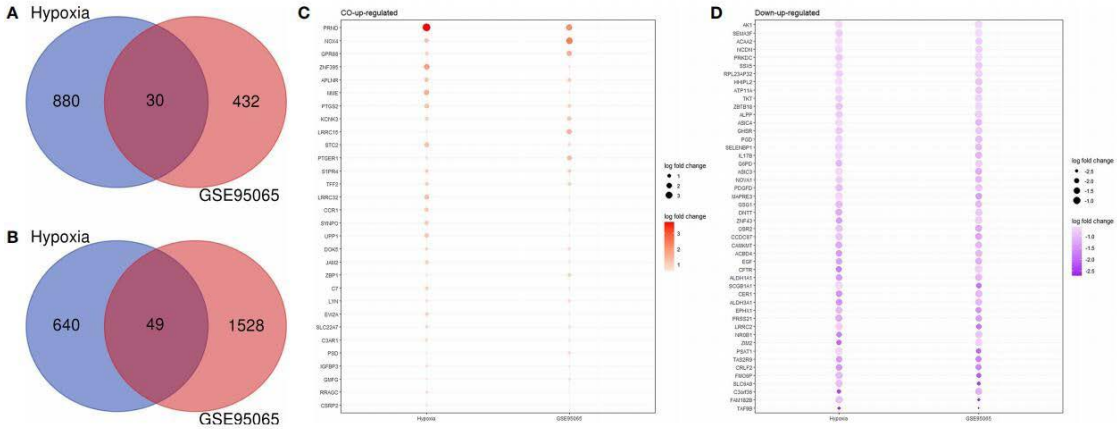
Objectives: Systemic sclerosis (SSc) is an autoimmune disease caused by various pathogenic factors, including hypoxia. Hypoxia stimulates the production of the extracellular matrix to promote fibrosis. However, the integrated function and underlying mechanism of hypoxia in SSc is unclear.

Methods: In the present study, we used Agilent SurePrint G3 Human Gene Expression v3 for the transcriptional sequencing of fibroblasts with and without hypoxia to detect differentially expressed genes (DEGs) in hypoxia. We analyzed the results with the transcriptome data of SSc lesions (GSE95065) to select the co-DEGs. Then, GO and KEGG enrichment analyses were performed based on the co-DEGs using the R package Cluster Profiler, which showed that hypoxia and crosstalk of hypoxia with other pathogenic factors are involved in the pathogenesis of SSc. Furthermore, we constructed a (Protein–protein interaction) PPI network of co-DEGs and screened two significant functional expression modules.



Results: We identified nine hub genes (ALDH1A1, EGF, NOX4, LYN, DNTT, PTGS2, TKT, ACAA2, and ALDH3A1). These genes affect the pentose phosphate pathway, oxidative stress, and lipolysis.

Conclusion: Our study provides insights into the mechanisms underlying the effects of hypoxia on SSc pathogenesis, which will help to better understand SSc pathogenesis and develop new therapeutic strategies for SSc.



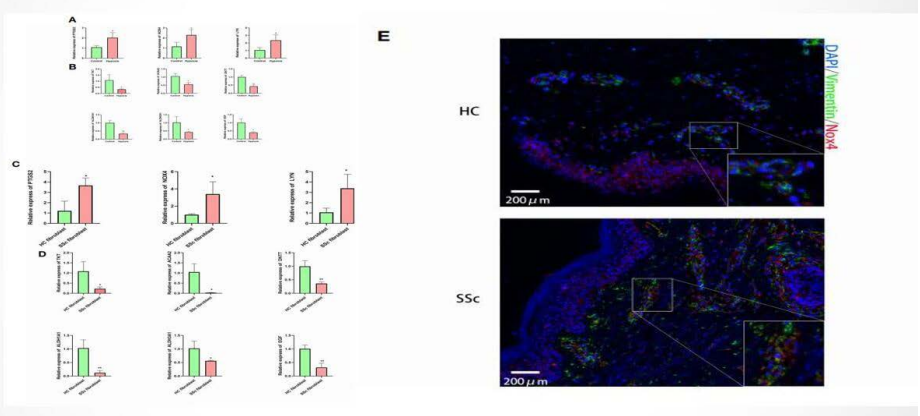


TABLE 2 The hub genes for DEGS ranked in cytoHubba.

Category	The hub genes for DEGS ranked in cytoHubba				
	MCC	MNC	Degree	EPC	Radiality
Gene symbol top 5	ALDH1A1	EGF	ALDH1A1	ALDH1A1	ALDH1A1
	EGF	NOX4	EGF	EGF	EGF
	NOX4	G6PD	NOX4	LYN	NOX4
	LYN	DNTT	LYN	ALDH3A1	LYN
	G6PD	PTGER1	G6PD	DNTT	CRLF2
	DNTT	ACAA2	DNTT	PRKDC	ALDH3A1
	ACAA2	PTGS2	ACAA2	PTGS2	DNTT
	PTGS2	PGD	PTGS2	PGD	PTGS2
	PGD	TKT	PGD	TKT	TKT
	TKT	IGFBP3	TKT	IGFBP3	IGFBP3

Biography

Deputy chief physician of dermatology department of Hunan Children's Hospital, Doctor of Medicine, has been selected as International Talent Young Eagle Program and 1233 Young and middle-aged talents of Hunan Children's Hospital. Young editorial member of JACI Special Issue on Skin Allergy, young member of Journal of Central South University (Medical Edition), member of Dermatologist Branch of Hunan Medical Doctor Association, member of Traditional Chinese Medicine Information Research Association and Medical Cosmetology Branch of Hunan Province, presided over one scientific research project of Hunan Natural Science Foundation and Hunan Health Commission, participated in many scientific research projects of National Natural Science Foundation and provincial level. She has published more than 20 academic papers.

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Baicalin regulates autophagy to interfere with small intestinal acute graft-versus-host disease

Xing Cui[2] and **Xiaoqi Sun**[1]

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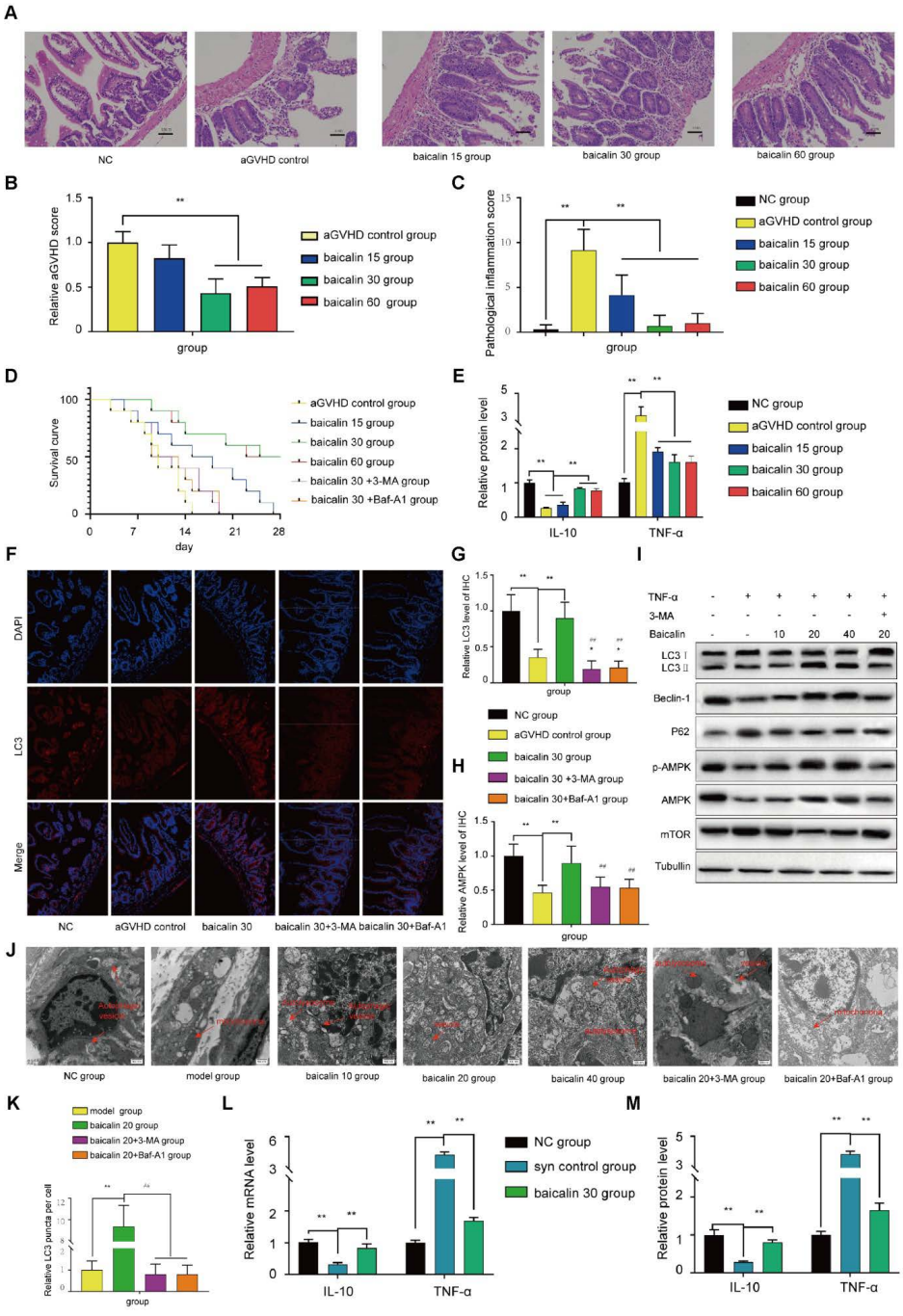
[2]*Center of Oncology and Hematology, The Second Affiliated Hospital of Shandong University of Traditional, China*

Acute graft-versus-host disease (aGVHD) is the main complication and the cause of death after allogeneic hematopoietic stem cell transplantation. Previous studies have shown that interference with autophagy may against aGVHD after bone marrow transplantation. Baicalin can protect the small intestinal epithelial cells of rats against TNF-α-induced injury and alleviate enteritis-related diarrhea. To verify whether baicalin can protect the small intestinal mucosal barrier by regulating abnormal autophagy, a mouse model of intestinal aGVHD was established. CB6F1 mice were intravenously injected with a suspension of mononuclear cells derived from BALB/c donor mice bone marrow and splenic tissue after treatment with ^{60}Co X-rays. The survival time, TNF-α and IL-10 levels, and autophagy markers levels in the intestine were assessed after treatment with different doses of baicalin for 15 days. A cell model of intestinal barrier dysfunction was also constructed to verify the effect of baicalin *in vitro*. The results showed that baicalin significantly reduced the aGVHD pathology score and clinical score, and prolonged the survival time of aGVHD mice by decreasing the TNF-α level and increasing the IL-10 level. Immunofluorescence staining, immunohistochemistry, western blot, and transmission electron microscopy examination showed that baicalin treatment increased the autophagy level and led to the recovery of mitochondrial structures in the intestinal mucosal epithelial cells of mice and Caco-2 cells. Western blotting results also showed that baicalin enhanced autophagy by regulating the AMPK/mTOR pathway, which were observed both *in vivo* and *in vitro*. Furthermore, the effect of baicalin was reduced after combination treatment with the autophagy inhibitor 3-methyladenine. In summary, baicalin can alleviate the severity of small intestinal aGVHD and intestinal mucosal barrier damage by regulating autophagy and inflammatory cytokine levels, thus may have the potential to be a new treatment for aGVHD.



Biography

Prof. Cui studied Clinical Discipline of Chinese and Western at Shandong University of Traditional Chinese Medicine and received his Ph.D. degree in 2011 at the same institution. After two years of postdoctoral fellowship supervised by Prof. Wang at Shandong University, focusing on the development of treatment for lymphoma and multiple myeloma, he obtained the position of an attending doctor. He then joined the research group of Prof. Janz at the Department of Pathology, University of Iowa (America). Now, he runs a department of Oncology and Hematology and has published about 20 research articles in SCI(E) journals.

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September 11-12, 2023

Successful treatment of subacute thyroiditis after recombinant COVID-19 vaccination using Traditional Chinese Medicine: A case report

Yong Zhao, Bo Zhao and **Ying Bing Liang**

Department of Oncology, The Traditional Chinese Medicine Hospital of Lang fang City, China

Subacute thyroiditis (SAT) is a thyroid inflammatory disease, which can be triggered by viral infection. The severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) is considered to be a potent SAT-triggering factor in this COVID-19 pandemic. However, SAT occurring after SARS-CoV-2 vaccination is rarely reported. Despite the high availability of diagnostic tools, the recurrence and steroid dependence as well as delayed diagnosis of SAT remain. This paper reports a rare case where a patient was diagnosed with SAT post receiving a recombinant novel coronavirus vaccine (Anhui Zhifei Longcom Biopharmaceutical Co.Ltd., China), and efficiently treated with traditional Chinese medicine rather than prednisone. We hope that this case report not only contributes to raising awareness of SAT related to the COVID-19 vaccine but also provides an effective remedy in addition to glucocorticoid (GC).

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M1A regulator-mediated methylation modification and their prognostic value in multiple myeloma

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[2]*Department of Oncology and Hematology, The Second Affiliated Hospital of Shandong University of Traditional Chinese Medicine, China*

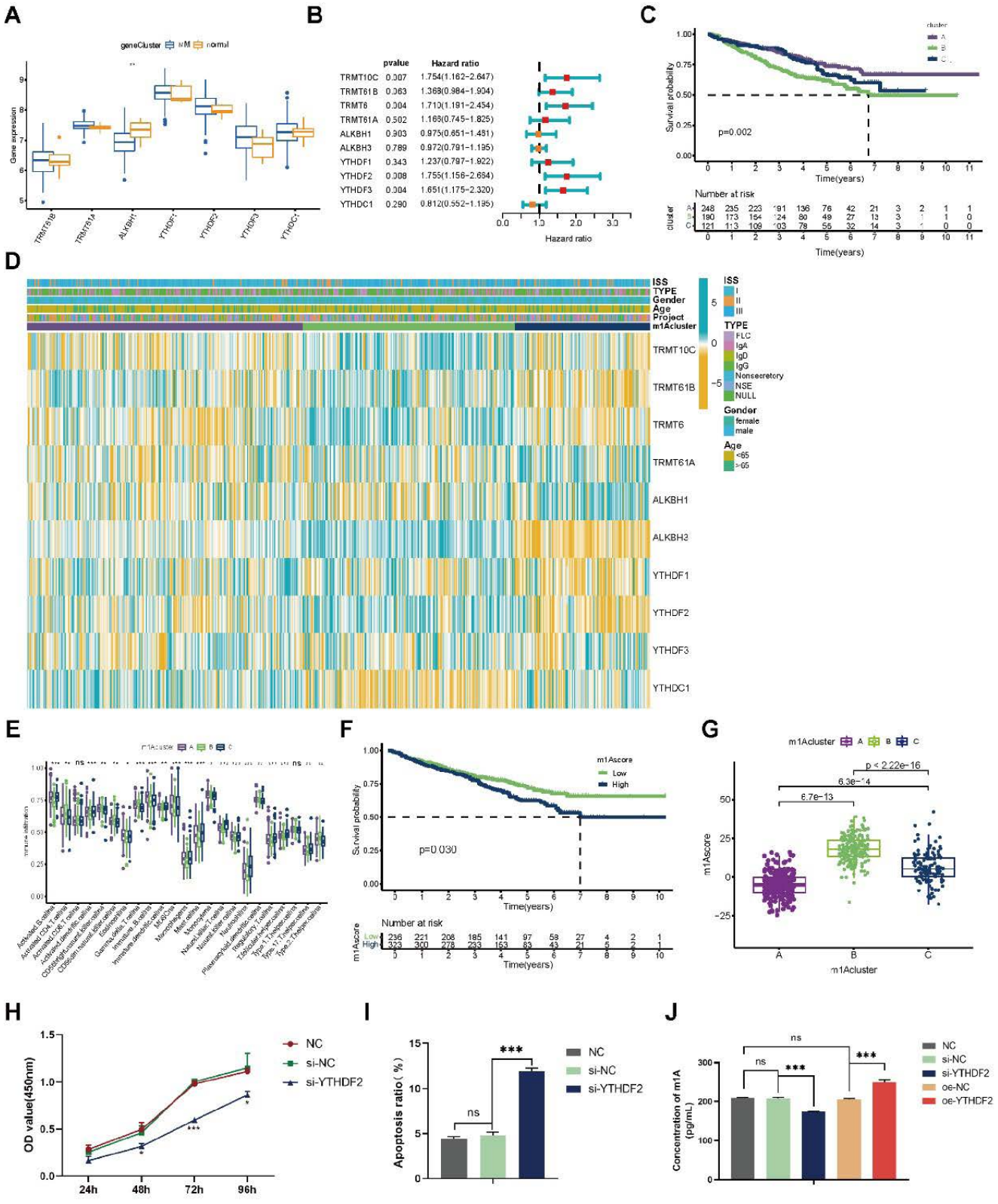
Background: N1-methyladenosine (m1A), a dynamic modification of RNA with strong enrichment in the 5'-UTR, is gaining attention for its role across diverse biological and pathological processes such as cell differentiation, stress response and tumorigenesis[1,2]. However, the m1A regulator-mediated methylation modification in multiple myeloma (MM) remains unclear.

Aims: To investigate the transcriptomic m1A landscape and identify potential prognostic regulators in MM progression.

Methods: We analyzed the expression of 10 m1A regulators and evaluated their prognostic value in three GEO datasets. Then, unsupervised clustering analysis was performed to evaluate the m1A modification patterns in MM and the m1A score was constructed to quantify m1A modification patterns of individual tumors using the PCA algorithm. Additionally, the potential role of YTHDF2 in MM pathogenesis was investigated in U266 cells.

Results: Compared with healthy donors, the expression of three m1A readers (YTHDF1, YTHDF2, YTHDF3) was significantly upregulated in MM patients (Figure A). Multivariate cox analysis revealed that YTHDF2, YTHDF3 and TRMT6 could be independent prognostic factors for MM (Figure B). Based on the expression of ten m1A regulators, three distinct modification patterns were identified in MM patients, which were termed by clusters A-C respectively. There was a worse outcome in cluster B than in luster A and C, characterized by the increased expression of four regulators (YTHDF2, TRMT6/10C/61B) and remarkably deficient in innate immune cell infiltration (Figure C-E). Then, the K-M survival curve revealed that patients with low m1Ascores had a prominent survival probability (Figure F). Coincidentally, cluster B with a worse outcome exhibited the highest median score (Figure G). The reader protein YTHDF2 is associated with poor survival of MM patients and showed great superiority as a prognostic factor. Subsequent cell experiments demonstrated that YTHDF2 could promote the proliferation and inhibit apoptosis of U266 cells (Figure H, I). Notably, an evidently increased m1A level was observed in m1A dot-blot assay when YTHDF2 was over-expressed (Figure J).

Summary/conclusion: This study identified the modification patterns and their superior prognostic value of m1A regulators and demonstrated that the reader protein YTHDF2 is a potentially crucial target for MM.


A
B
C
D
E
F
G
H
I
J
geneCluster tumor normal
Gene expression
pvalue
Hazard ratio
TRMT10C 0.007 1.754(1.162-2.647)
TRMT61B 0.063 1.368(0.984-1.904)
TRMT6 0.004 1.710(1.191-2.454)
TRMT61A 0.502 1.163(0.745-1.825)
ALKBH1 0.903 0.975(0.651-1.451)
ALKBH3 0.789 0.972(0.791-1.195)
YTHDF1 0.343 1.237(0.797-1.922)
YTHDF2 0.008 1.755(1.156-2.664)
YTHDF3 0.004 1.651(1.175-2.320)
YTHDC1 0.290 0.812(0.552-1.195)
Hazard ratio
Survival probability
p=0.002
Time(years)
Number at risk
ISS
TYPE
Gender
Age
Project
m1Acluster
TRMT10C
TRMT61B
TRMT6
TRMT61A
ALKBH1
ALKBH3
YTHDF1
YTHDF2
YTHDF3
YTHDC1
p=0.030
m1Ascore
Low
High
p < 2.22e-16
6.7e-13
m1Acluster
NC
si-NC
si-YTHDF2
OD value(450nm)
24h
48h
72h
96h
Apoptosis ratio (%)
ns
***
oe-NC
oe-YTHDF2
Concentration of m1A (pg/mL)

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Spatial-temporal heterogeneity and determinants of HIV prevalence in the Mano River Union countries

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Background: Utilizing population-based survey data in epidemiological research with a spatial perspective can integrate valuable context into the dynamics of HIV prevalence in West Africa. However, the situation in the Mano River Union (MRU) countries is largely unknown. This research aims to perform an ecological study to determine the HIV prevalence patterns in MRU.

Methods: We analyzed the Demographic and Health Survey (DHS) and the AIDS Indicator Survey (AIS) data on HIV prevalence in MRU from 2005–2020. We examined sex-specific ratios of respondents to profile the spatial distribution of HIV prevalence and HIV hot spots. We employed Geodetector to measure the risk of HIV incidence. We predicted the combinations of comprehensive correct knowledge (CCK) about HIV/AIDS that can scale up the ratio of HIV testing uptake employing the Least Absolute Shrinkage and Selection Operator (LASSO) regression.

Results: We leveraged data for 158,408 respondents from 11 surveys. From 2005–2015, Cote d'Ivoire was the hot spot for HIV prevalence with a Gi_Bin score of 3, Z-Score 8.0–10.1 and $P<0.001$. From 2016–2020, Guinea and Sierra Leone were hot spots for HIV prevalence with a Gi_Bin score of 2, Z-Score of 3.17 and $P<0.01$. Geodetector identifies Cote d'Ivoire as the risk point for HIV incidence for women and men with q-values of 0.61 and 0.40, respectively. Our LASSO model predicted different combinations of CCKs with sex-specific needs to improve HIV testing uptake.

Conclusions: The CCK about HIV/AIDS and HIV testing uptake are below the threshold target set by UNAIDS for ending the epidemic. Our LASSO model predicted that different emphases should be implemented when popularizing the CCK about HIV/AIDS for adult women and men. The HIV epidemic in the MRU is far from near over.

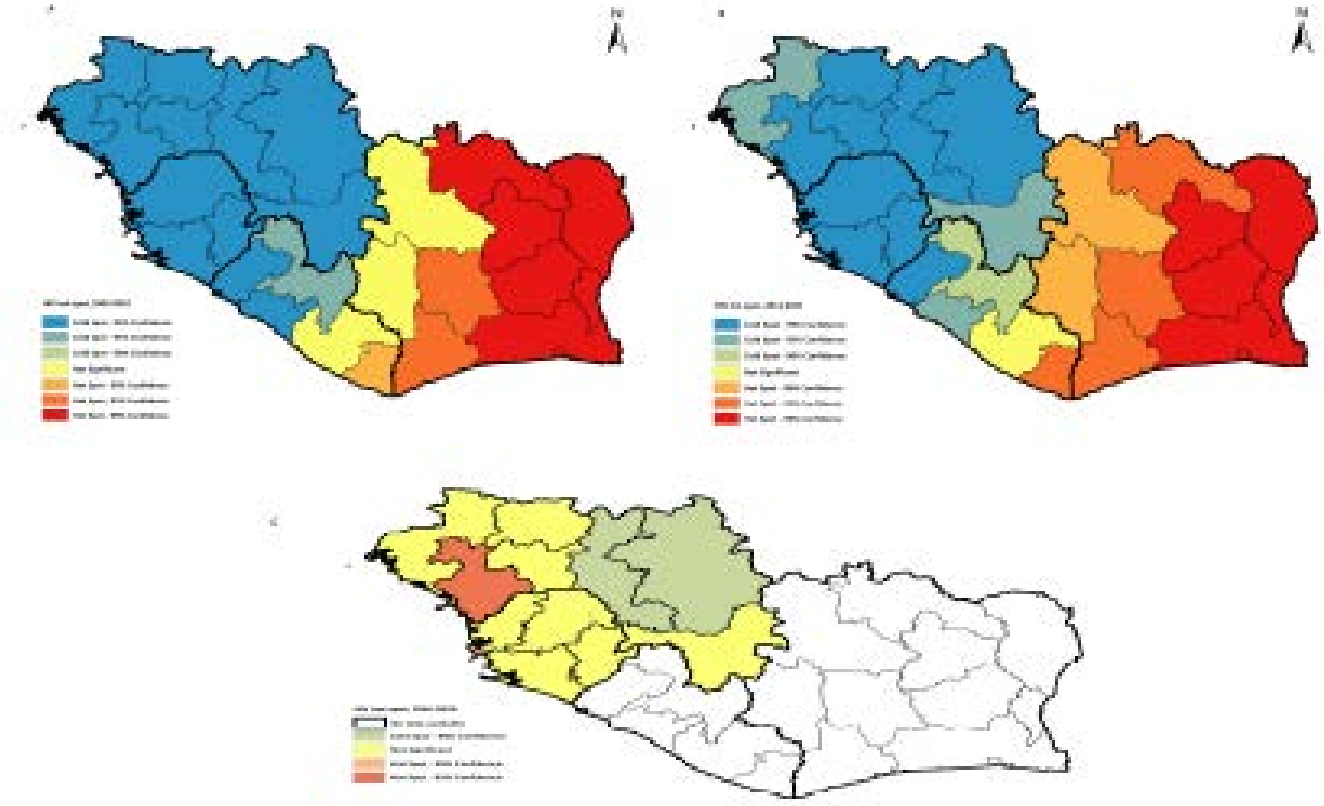

Fig.1 *HIV significant spatial clusters of high HIV prevalence (hot spots) and low HIV prevalence (cold spots) in the MRU countries for 15 years (2005–2020).*
A Represents the HIV hot spots in the general population for the first group of our geostatistical analysis from 2005 to 2010 concerning DHS. B Represents the HIV hot spots in the general population for the second group in our geostatistical analysis from 2011 to 2015 concerning DHS. C Represents the HIV hot spots in the general population for the third group in our geostatistical analysis from 2016 to 2020 concerning DHS.
Spatial Data Repository; The Demographic and Health Surveys Program. ICF International. Available from spatialdata.dhsprogram.com (26 November 2020). HIV Human Immunodeficiency Virus, MRU Mano River Union, DHS Demographic and Health Surveys, ICF International Classification of Functionality, Disability and Health.

Tab.1 *Summary of Optimal LASSO Regression model for predicted CCK among adult aged 15-49 years in the MRU countries*

Tab.1 Summary of Optimal LASSO Regression model for predicted CCK among adult aged 15-49 years in the MRU countries

Parameter	Detailed parameter description	Recurrence Rate (%)	Mean	95% CI
	Adult women aged 15-49 ever tested for HIV and received test results			
Intercept		100%	-7.15	(-10.35, -4.44)
CCK12	Prevention knowledge of MTCT- HIV can be prevented by mother taking special drugs during pregnancy	100%	0.21	(0.19, 0.23)
CCK13	Knowledge of prevention of mother to child transmission of HIV	100%	0.34	(0.31, 0.39)
CCK15	Accepting attitudes -would buy fresh vegetables from a shopkeeper with AIDS	91.30%	0.01	(0.002, 0.03)
CCK7	No incorrect beliefs about AIDS- AIDS cannot be transmitted by mosquito bites	100%	0.16	(0.12, 0.19)
	Adult men aged 15-49 who ever tested for HIV and received test results			
Intercept		100%	-6.32	(-7.39, -1.90)
CCK12	Prevention knowledge of MTCT-HIV can be prevented by mother taking special drugs during pregnancy	100%	0.26	(0.26, 0.27)
CCK14	Accepting attitudes - willing to care for family member sick with AIDS	92.10%	0.02	(0.01, 0.03)
CCK17	Accepting attitudes - Not secretive about family member's HIV status	96.50%	-0.09	(-0.11, -0.01)
CCK18	Accepting attitudes towards those living with HIV- composites of 4 components	92.10%	0.18	(0.08, 0.24)
CCK7	No incorrect beliefs about AIDS - AIDS cannot be transmitted by mosquito bites	92.70%	0.01	(0.01, 0.02)
CCK8	No incorrect beliefs about AIDS- AIDS cannot be transmitted by supernatural means	88.70%	0.06	(0.01, 0.09)
CCK9	No incorrect beliefs about AIDS- cannot become infected by sharing food with someone who has AIDS	100%	0.12	(0.09, 0.14)
	Adult women aged 15-49 receiving an HIV test and receiving test results in last 12 months before the survey			
Intercept		100%	-1.86	(-3.38, -0.29)
CCK12	Prevention knowledge of MTCT- HIV can be prevented by mother taking special drugs during pregnancy	100%	0.16	(0.15, 0.16)
CCK13	Knowledge of prevention of mother to child transmission of HIV	99.40%	0.02	(0.0001, 0.04)
CCK5	Comprehensive correct knowledge about AIDS	100%	0.04	(0.04, 0.05)
CCK7	No incorrect beliefs about AIDS- AIDS cannot be transmitted by mosquito bites	99.90%	0.05	(0.03, 0.06)
	Adult men aged 15-49 receiving an HIV test and receiving test results in last 12 months before the survey			
Intercept		100%	-1.58	(-3.18, -0.13)
CCK10	No incorrect beliefs about AIDS- composite of 3 components	100%	0.07	(0.05, 0.08)
CCK12	Prevention knowledge of MTCT- HIV can be prevented by mother taking special drugs during pregnancy	100%	0.13	(0.11, 0.17)

Biography

Growing up in a developing nation, Idrissa Laybohr Kamara always understands the value of education and healthcare. He specialized in epidemiology and laboratory technology with a decade of successful leadership in clinical and public health laboratories including biosafety level 3 laboratories. He is the head of the Sierra Leone-China Friendship Biosafety Level 3 Laboratory. He was the leading scientist in the fight against the Ebola epidemic in Sierra Leone, and a microscopist during the 2013 and 2016 Sierra Leone malaria indicator survey (SLMIS). He has published papers on the molecular epidemiology of bacterial antibiotic resistance and HIV prevalence in the Mano River Union countries. He is a lecturer with advanced training in the genomics of infectious diseases in the United States of America and PR. China. He is the founder of the 'Association of Global Public Health Research' at startup school. Join me for better Public Health interventions in Africa.

Automatic lung disease classification from the chest X-ray images using hybrid deep learning algorithm

Farhan Abobaker Mohammed Qasem and **Shangming Yang**

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The chest X-ray images provide vital information about the congestion cost-effectively. We propose a novel Hybrid Deep Learning Algorithm (HDLA) framework for automatic lung disease classification from chest X-ray images. The model consists of steps including pre-processing of chest X-ray images, automatic feature extraction, and detection. In a pre-processing step, our goal is to improve the quality of raw chest X-ray images using the combination of optimal filtering without data loss. The robust Convolutional Neural Network (CNN) is proposed using the pre-trained model for automatic lung feature extraction. We employed the 2D CNN model for the optimum feature extraction in minimum time and space requirements. The proposed 2D CNN model ensures robust feature learning with highly efficient 1D feature estimation from the input pre-processed image. As the extracted 1D features have suffered from significant scale variations, we optimized them using min-max scaling. We classify the CNN features using the different machine learning classifiers such as AdaBoost, Support Vector Machine (SVM), Random Forest (RM), Backpropagation Neural Network (BNN), and Deep Neural Network (DNN). The experimental results claim that the proposed model improves the overall accuracy by 3.1% and reduces the computational complexity by 16.91% compared to state-of-the-art methods.

Biography

Farhan Abobaker is a software engineering PhD student currently enrolled at the University of Electronic Science and Technology of China. He graduated from Taiz University in Yemen in July 2014 with a Bachelor's degree and Yangzhou University in China in June 2020 with a Master's degree. Farhan is expected to graduate from his PhD program in December 2023.

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Exploring the Traditional Chinese Medicine (TCM) database chemical space for the inhibition of I7L, protease, from Monkeypox virus

Abbas Khan

Department of Bioinformatics and Biological Statistics, Shanghai Jiao Tong University, China

The ongoing monkeypox virus outbreak emerged in 2022 during the COVID-19 pandemic demonstrated a potential threat of this viral zoonosis to public health. To date no specific treatments either small molecule or vaccines against this infection are available except a supportive therapy. Considering the success of inhibitor discovery by targeting the viral proteases i.e., HIV, Hepatitis C, and SARS-CoV-2, we also targeted I7L protease from monkeypox virus (mpox) to design and develop of specific and compelling drugs from traditional Chinese medicine (TCM) database against this emerging disease. Using molecular screening, only four hits TCM27763, TCM33057, TCM34450 and TCM31564 demonstrated better pharmacological potential than the TTP-6171, the only non-covalent I7L protease inhibitor taken as control. Binding mode of each of the top hit revealed that these compounds block the main active site residues i.e., Trp168, Asn171, Arg196, Cys237, Ser240, Trp242, Glu325, Ser326, and Cys328 and block the function of I7L protease. Moreover, molecular simulation revealed that the identified compounds exhibit stable dynamics and may induce stronger therapeutic effects in experimental setup. All the complexes reported tighter structural packing and less flexible behaviour. We found that the average hydrogen bonds in TCM27763, TCM33057, TCM34450 and TCM31564-I7L complexes remained higher than the control drug. Finally, the total binding free energy demonstrated the best hits among the all. The BF energy results revealed -62.60 ± 0.65 for the control-I7L complex, for the TCM27763-I7L complex -71.92 ± 0.70 kcal/mol, for the TCM33057-I7L complex the BF energy was -70.94 ± 0.70 kcal/mol, for the TCM34450-I7L the BF energy was -69.94 ± 0.85 kcal/mol while for the TCM31564-I7L complex the BF energy was calculated to be -69.16 ± 0.80 kcal/mol. Although, we used state-of-the-art computational methods but these are theoretical insights and need further experimental validation.

Biography

Dr. Abbas Khan is a graduate from Shanghai Jiao Tong University, Shanghai, China and currently working as post-doctoral fellow in the same Lab. He has published ~170 publications during his career with 2500+ citations and also a winner of Super-postdoctoral funding. He has made a great contribution in scientific field particularly viral informatics. He has two drug Chinese patents that were developed during the pandemic during COVID-19 outbreak. He was the first to report the impact of different mutations on the binding of spike protein with hACE2. He is also an editor, guest editor and review editor with many well reputed journals. His current research work is focused on anti-viral drugs development for Monkeypox virus and structural insights into the mechanism of pathogenesis.

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A case of Posner-Schlossman syndrome treated by gonioscopy-assisted transluminal trabeculotomy

Zeng Liuzhi

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Background: A 28-year-old male presented recurrent Posner-Schlossman syndrome in his left eye, leading to uncontrolled intraocular pressure (IOP) and thus glaucomatous optic neuropathy.

Objective: To observe the curative effect of gonioscopy assisted transluminal trabeculotomy (GATT) in the treatment of Posner-Schlossman syndrome.

Method: In this paper, GATT was used to make a 360 degrees incision into the inner wall of the Schlemm canal and the trabecular meshwork to reduce the resistance against the outflow of the aqueous humor at the inner wall of the Schlemm canal and the trabecular meshwork to a greater extent, thus lowering the IOP effectively.

Result: This case was followed up for 1y postoperatively, during which the IOP was controlled well without using the ocular hypotensive agents, and fluctuated between 12 and 15 mmHg. The complications such as low IOP, shallow anterior chamber and choroidal detachment were not observed postoperatively either, and no transient IOP rise occurred. The patient's aqueous humor test indicated HSV, cytomegalovirus and rotavirus antibodies were positive, and cytomegalovirus infection was considered to be the most possible cause of PSS. Local use of the ganciclovir eye drops is somewhat useful for controlling the recurrence of PSS and reducing the use of other drugs. Currently, ganciclovir is the clinically preferred anti-cytomegalovirus drug and can be administered in many ways, such as by oral administration, topical eye drop or intravitreal injection. It can inhibit the synthesis of the virus DNA and prevent the replication of the herpesvirus. Therefore, adding the ganciclovir ophthalmic gel postoperatively may reduce the recurrence of PSS.

Conclusion: The treatment outcome of this case shows that GATT played a role in significantly lowering the IOP when used to treat this patient with the Posner-Schlossman syndrome.

Biography

Zeng Liuzhi, director of ophthalmology, chief physician and master tutor of Chengdu First People's Hospital, Affiliated to Chengdu University of Traditional Chinese Medicine, member of Jiusan Society and member of Wuhou District CPPCC. Member of the Ophthalmology Committee of the Chinese Medical Association of Integrative Medicine Physicians Branch, deputy leader of the glaucoma Group of the Ophthalmology Committee of the Sichuan Medical Association, Chairman of the ophthalmology Committee of the Chengdu Rehabilitation Medical Association, etc. She has visited and studied at Wills Eye Hospital, Huntington Hospital, and Southern California Glaucoma Consultants. Specializes in minimally invasive glaucoma and cataract surgery and difficult disease diagnosis and treatment. It is the first to carry out minimally invasive glaucoma surgery in Sichuan and is in a leading position, making important contributions to the promotion and application of minimally invasive glaucoma surgery. Published 50 papers, wrote 3 books, 3 invention patents, invention patents "Zeng's trabecular cutting knife" has been transformed and widely used in clinical practice, presided over and participated in 20 scientific research, scientific research achievements won the provincial science and technology first prize, "domestic advanced" evaluation.

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International law in the era of blockchain: Law semiotics

Koshzhanova Baktygul

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Being built on the ground of mutual effect, facing the current state-isolation, international law is losing its grip on efficiency. This makes some of us to question 1. If law is not working, do we still need law? If we would say no, the history shows that such is the path to the state-suicide. As Smithian mutual benefits is the assurance of the individual benefits, we need international relationships to create the benefits for the individual states, hence international law, Yet the current one is certainly not working, then, the question, 2. What should the international law be to?

The enforcement of the international law could be accomplished through the blockchain. As blockchain "went bypass" the national law, and simply negated it, yet it is still not immune to the scope of international jurisdiction. We also argue that the blockchain' smart contract is not sufficient enough to operate smoothly. Human brain is structured as the mirror rather than a glass and transferring the law interpretation to the machine would not work, hence, we designed the formula of langue and parole, blockchain multiseg operating under the semiotics of the international law. Here the language learning is modelled with the supervisory and reinforcing algorithms, with supervisory predetermined with bias X,Y towards the values of law. Sort of form of constant repetends of Heidegger's hermeneutics circle.

The most important part in this paper is written with the purpose to explain that international law is at the same struggle that Kafka had. Carrying the weight of both, the clothed façade and true self, first being the morality guide and later the states will, and not being neither, international law is self-isolated from the real world, as Gregor Samsa was. Hence, this is not the paper of secularization, no customs, no higher purpose, nothing except the will of states, that can be constantly renewed with the signifier and signified being linked and re-linked.

Biography

Associate Professor Dr. Koshzhanova Baktygul: PhD of International Law, Tsinghua University Research Direction: International Law, Law Logic, Jurisprudence, etc. Head of the Research Center of Carbon Neutrality Published in academic journals as "International Journal for the Semiotics of Law - Revue internationale de Sémiotique juridique" and etc.

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K index utility as diagnostic and prognostic biomarker in the assessment of patients with suspected Multiple Sclerosis

Claudia Cutellè[1,2,5], Claudia Balducci[1], Diletta Cereda[1], Maria Letizia Fusco[1], Davide Iacobucci[1,2], Jacopo Perugini[1,2], Fiammetta Pirro[1,2], Rinaldo Brivio[3], Davide Paolo Bernasconi[4], Carlo Ferrarese[1,2], Maura Frigo[1] and **Guido Cavaletti[1,2]**

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[2]Experimental Neurology Unit, University of Milano-Bicocca, Italy
[3]Biochemistry Laboratory, San Gerardo Hospital, Italy
[4]University of Milano-Bicocca, Italy
[5]Humanitas Research Hospital, Italy

Identification of early biomarkers in Multiple Sclerosis (MS) is crucial for providing more individualized treatments. Cerebrospinal fluid (CSF) immunoglobulin (Ig) free light chains (FLC) are a quantitative, reliable, rater-independent measure of intrathecal immune reaction. In literature, CSF FLC showed a certain MS specificity and, more interesting, some predictive power for MS course, but the wide variability between methods and results and the use of different FLC indices complicate comparison between studies and the detection of quantitative prognostic cut-offs.

The aim of our research is to evaluate the role of FLC in the initial assessment of Multiple Sclerosis (MS) patients and to select the best index and cut-offs exportable in clinical practice.

We analysed CSF/serum samples of 140 patients and followed-up the CIS/MS subgroup for 7 years. Our results suggest κ index as a quantitative diagnostic and prognostic biomarker in MS, significantly associated to baseline lesion load and to successive clinical course. We propose k index ≥ 106 as a prognostic cut-off to select patients at major risk of relapse, potentially influencing initial therapeutic decisions.

Our initial evidence opens the discussion on hotly debated topics, such us the need/not need of CSF sample in suspected MS, the relative role of intrathecal B-cell immune response and of blood-brain barrier damage in MS, the reason of "kappa" versus "lambda" FLC prevalence in MS patients, the usefulness of quantitative biomarkers and specific cut-offs in MS clinical management.

A transitive perspective on the relief of Psychosomatic symptoms

Walter Tschugguel

Department of Obstetrics and Gynecology, Medical University of Vienna, Austria

A key element of successful psychotherapy for the treatment of psychosomatic disorders is that patients recognize and change the meaning of their experiences. Such changes are brought about by appropriate verbal referencing of symptoms currently experienced within a given narrative. The present theoretical paper argues that changes are not based on better, more adaptive narratives per se, but on the transition (or linkage) process itself that is experienced between different narratives. This view is theoretically justified in various ways: first, it is accounted for through contemporary spatiotemporal neuroscience, which aims to connect mental and structural aspects via a common dynamic property or, according to Northoff, the "common currency" of a brain's orientation along its embeddedness in its contextual world, i.e., body and environment. Second, it is justified through the physics concept of "spontaneous symmetry breaking," which is used analogously to "suffering from symptoms." If the sufferer is willing to experience a process of "going back," that is, moving away from the previous narrative (or aspect) by verbally relating to the felt aspects of the symptom in question (i.e., approaching its meaning), they are moving toward symmetry or an underlying dynamic alignment with their world context. Clinical predictions are derived from the theoretical arguments.

Biography

Walter Tschugguel, M.D., Associate Professor of Obstetrics and Gynecology, gynecologist, obstetrician and general practitioner; habilitation in Gynecology and Obstetrics at Medical University of Vienna; private practice in Vienna with focus on clinical hypnosis, teaching activities, research projects and publications as well as seminar and lecture activities on clinical hypnosis and philosophical principles underlying the processes in psychosomatic disorders, psychotherapeutic interaction and trance. Founder and co-founder of the university courses "Medical and Dental Hypnosis" at Medical University of Vienna.

Hypersensitivity to excipients

Elleni Sofia Vaia

CHU Brugmann, Belgium

Excipients are considered inert substances, without an active role in treatment, added to drugs in order to change their solubility or their kinetics of absorption, increase the stability, influence palatability or create a distinctive appearance.

The hypersensitivity reactions to excipients are rare, but they can be severe. An accurate diagnosis, even sometimes is a real challenge, is mandatory. In its absence, the imputability of the reaction can be inappropriately attributed to the active substance leading to the useless eviction of it and the persistence of the exposure to the culprit with risk of recurrence.

Their clinical presentation is heterogenous, including immediate (from urticaria / angioedema to anaphylaxis) and delayed hypersensitivity reactions. A suspicion of hypersensitivity to excipients appears in case of multiple drug hypersensitivity.

The diagnosis is based on clinical history and an allergy workup including skin tests (skin prick-tests, intradermal tests, patch-tests), biological tests when available (basophil activation tests, specific IgE) and, in selected cases, provocation tests.

The list of excipients must be accessible for all drugs. The healthcare providers must be aware of the possibility of a hypersensitivity reaction to them.

Biography

Oct 2018 – June 2019: DIU Allergo-Anesthésie (Interuniversitary certificate Perioperative Hypersensitivity) University of Montpellier, France

2018: EAACI-UEMS Exam

Oct 2016 – June 2017: DIU Poumon et maladies systémiques (Interuniversitary certificate Lung and systémic diseases) University of Lyon, France

Oct 2013 – June 2016: Capacité d'Allergologie (university programme of education in Allergology in France) University of Strasbourg, France

Oct 2013 – June 2015: Certificat d'Université en Immunoallergologie Clinique (university programme of education in Allergology in Belgium) Free University of Brussels, Belgium

Jan 2008 – Dec 2012: Internship in pneumology, Ministry of Health, National Center of Health Education Bucharest, Romania

2001 – 2007: University of Medicine and Pharmacy „Carol Davila" Faculty of General Medicine, Bucharest, Romania.

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Actions and challenges experienced by female caregivers in protecting older people during COVID-19 pandemic in Indonesia

Gregorius Abanit Asa[1,2], Nelsensius Klau Fauk[1,3], Melkianus Ratu[4], Elsa Dent[1] and **Paul Russell Ward[1]**

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[2]Sanggar Belajar Alternatif (SALT), Indonesia
[3]Institute of Resource Governance and Social Change, Indonesia
[4]Universitas Timor, Indonesia

The novel coronavirus has rapidly impacted societies on a global scale, with older people among the most affected. To care for older people living in their own homes, female family caregivers play a pivotal role. The current study aimed to explore actions of female family caregivers and challenges they faced in taking care of older people living at homes during COVID-19 pandemic in Belu district, Indonesia. This qualitative study involved twenty female family caregivers, who were recruited using a combination of purposive and snowball sampling techniques. Findings were grouped into two main categories: (i) actions of female family caregivers in taking care of older adults during COVID-19 pandemic. These included limiting both visitation of extended family members and older adults' activities outside homes; explaining about the virus to older adults and controlling news, social media and smart phones; providing nutrition, supplement and keeping daily diets; and (ii) challenges they faced in taking care of older adults included excessive fear of contracting COVID and possibility of infecting older people; feeling stressed; tired and overburdened. The study highlights the significant role family caregivers played to protect older people living at home. The findings provide can inform government intervention programs that address and support the needs of both family caregivers and older people living at home.

Biography

Gregorius Abanit Asa is currently a PhD student at Torrens University Australia. He has a Master's Degree in International Development from Flinders University, South Australia and Bachelor's Degree in Philosophy from Widya Mandira Catholic University, Indonesia. He has published articles in peer review journals. His interest is in public health including HIV, disability, elderly care, mental health, circumcision, alcohol, and hepatitis. His PhD project is about traditional male circumcision and HIV risk factors and its impacts on men and their families in Indonesia.

HIV-1 capsid elasticity and nuclear entry: A novel perspective on infection

Itay Rousso, A. Deshpande and **S. Harel**

Department of Physiology and Cell Biology, Ben-Gurion University of the Negev, Israel

HIV-1 infection requires passage of the reverse transcribing viral core through the nuclear pore of the cell, a process that depends on activities of the viral capsid. Recent studies have challenged the idea that capsid disassembly is required for nuclear entry. Interactions with the nuclear pore complex are apparently necessary but not sufficient for nuclear entry, and the mechanism by which the viral core traverses the comparably sized nuclear pore is unknown. Here we show that the HIV 1 core is highly elastic and that this feature is linked to nuclear entry and infectivity. Using a novel atomic force microscopy-based approach, we found that purified wild type cores return to their normal conical morphology following a severe forced compression. Analysis of two HIV-1 mutants that exhibit impaired nuclear entry revealed that the mutant viral cores are brittle. A suppressor mutation reduced brittleness and rescue infectivity. Core elasticity was also reduced by treatment with Lenacapavir, a clinically relevant antiviral drug. Our results indicate that capsid elasticity is a fundamental property of the HIV-1 core that enables its passage through the nuclear pore complex, thereby facilitating infection. These results provide new insights into the mechanisms of HIV-1 nuclear entry and the antiviral mechanisms of HIV-1 capsid inhibitors.

Surface-Enhanced Raman spectroscopy (SERS) for characterization SARS-CoV-2

Javier Christian Ramirez Perez

Sao Paulo University, Brazil

In this research we used SERS with silver nanoparticles (AgNPs) as the active substrate to develop a, simple, quick, and accurate method for the detection and characterization SARS-CoV-2 without the need for RNA isolation and purification. Inactivated SARS-CoV-2 was used. The SERS signals were more than 10^5 times enhanced than the normal Raman (NR) spectra. The SERS spectra of SARS-CoV-2 fingerprint revealed pronounced intensity signals of nucleic acids; aromatic amino acid side chains: 1007 cm^{-1} (Phe marker), 1095 cm^{-1} (CN and PO_2- markers), 1580 cm^{-1} (Tyr, Trp markers). Vibrations of the protein main chain: 1144 cm^{-1} (CN and NH_2 markers), 1221 cm^{-1} (CN and NH markers), 1270 cm^{-1} (NH_2 marker), 1453 cm^{-1} ($CHCH_2$ marker). All of these biomolecules could be adsorbed on the AgNPs surface's dense hot patches. The intensity of the SERS band varied with the concentration of SARS-CoV-2, with a virus detection limit of less than 10^3 vp/mL and RSDs of 20%.

Biography

Javier Christian Ramirez-Perez is a visiting professor at the University of Sao Paulo's Institute of Physics. He received a BS in Chemical Engineering from UMSA-Bolivia, an MSc in Environmental Systems Engineering from Clemson University, SC-USA, an MA in Translation and a PhD in Environmental Sciences from Rutgers University, NJ-USA.

Research areas include: Environmental biotechnology, which uses Raman, SERS, and FTIR spectroscopy to characterize and identify materials and microorganisms; Sustainable energy development: the manufacturing of dye-sensitized solar cells, fuel cells, and biofuels as; Pollution prevention: the biodegradation kinetics of solid organic wastes, biological wastewater treatment, and carbon sequestration.

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Development of quantitative PCR and digital PCR for the quantification of *Leishmania infantum* in dogs

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[1]Universidade Federal de São João Del Rei (UFSJ), Brazil
[2]Centro de Pesquisas René Rachou/CPqRR, Brazil
[3]Laboratório Federal de Defesa Agropecuária de Minas Gerais (LFDA – MG), Brazil
[4]Universidade Federal de Góias (UFG), Brazil

Leishmaniasis is a zoonotic disease with worldwide distribution. In the Americas, the causative agent of the visceral form is the protozoa *Leishmania (Leishmania) infantum.* Transmission to the host or vertebrate reservoir occurs through the bite of infected arthropod females like *Lutzomyia longipalpis*. The epidemiological connection between the infection in dogs and humans generate constant studies about the relationship between the parasite and the canine host, including the development of methods and tests for the detection and quantification of *Leishmania (L.) infantum.* Both conventional PCR (cPCR) and quantitative PCR (qPCR) can be used in the diagnosis of the parasite. Dropet Digital PCR (ddPCR) is another useful tool. Knowing the parasite load and its relationship with the clinical signs of naturally infected dogs is useful in research development and for establishing treatments that reduce the transmission of the disease. In this study, thirty-nine clinical samples of spleen from dogs naturaly infected by *L. infantum* were collected after necropsy. Two molecular tools were used to quantify the parasite load (qPCR and ddPCR) and there was 100% agreement in the results of the them. The tools developed in this work are important for the detection of *L. infantum* in dogs and humans. Droplet Digital PCR does not require a standard curve and is easy to standardize. In such manner, this new tool that can generate more in-depth information in the broad debate about parasitic loads and the pathogenesis of leishmaniasis.

Biography

He holds a Bachelor's degree in Biological Sciences from the Pontifical Catholic University of Minas Gerais (PUC-MG) in 1994, a Master's degree in Sciences - Cellular and Molecular Biology from FIOCRUZ in 1998, and a Ph.D. in Sciences - Parasitic Biology from FIOCRUZ in 2001. He conducted postdoctoral research at UFMG from 2003 to 2005 and at the Oswaldo Cruz Institute from 2021 to 2022. He served as Director of UEMG from 2003 to 2006 and as Director of the Centro Oeste Dona Lindu Campus from 2008 to 2021. He is a Full Professor at the Federal University of São João del-Rei, teaching in the Nursing, Pharmacy, and Medicine programs, as well as in the Graduate Programs (Master's and Ph.D.) in Health Sciences and Biotechnology at UFSJ, and in the Graduate Program in Teaching of Biosciences and Health at the Oswaldo Cruz Institute - Fiocruz.

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Voices from the patients: A qualitative study of the integration of Tuberculosis, Human Immunodeficiency Virus and primary healthcare services in O.R Tambo district, Eastern Cape, South Africa

Ntandazo Dlatu[1], Kelechi Elizabeth Oladimeji[2] and **Teke Apalata[3]**

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[2]University of South Africa, South Africa
[3]Department of Laboratory Medicine and Pathology, Walter Sisulu University, South Africa

Tuberculosis (TB), a disease of poverty and inequality, is a leading cause of severe illness and death among people with human immunodeficiency virus (HIV). In South Africa, both TB and HIV epidemics have been closely related and persistent, posing a significant burden for healthcare provision. Studies have observed that TB-HIV integration reduces mortality. The operational implementation of integrated services is still challenging. This study aimed to describe patients' perceptions on barriers to scaling up of TB-HIV integration services at selected health facilities (study sites) in Oliver Reginald (O.R) Tambo Municipality, Eastern Cape province, South Africa. We purposely recruited twenty-nine (29) patients accessing TB and HIV services at the study sites. Data were analyzed using qualitative content analysis and presented as emerging themes. Barriers identified included a lack of health education about TB and HIV; an inadequate counselling for HIV and the antiretroviral drugs (ARVs); and poor quality of services provided by the healthcare facilities. These findings suggest that the O.R Tambo district needs to strengthen its TB-HIV integration immediately.

Role of platelet concentrates in autoimmune blistering diseases

Abdel Hameed Hijazi

Sinai University, Egypt

Autoimmune blistering diseases are heterogeneous group of chronic bullous and ulcerative conditions affecting skin and/or mucous membranes, with the presence of autoantibodies against various epithelial and basal membrane proteins.

The complications of such chronic diseases affecting oral cavity are not limited to pain and difficulty of eating, it has a significant and dramatic effect on quality of life and psychological impact. The current treatments are not curative despite the advancements of targeted therapeutic modalities.

Regenerative medicine has emerged as a potentially beneficial approach to accelerate healing, reduce pain, and ultimately improve patient's quality of life. Biological autologous blood derived substances, such as platelet concentrates (PCs), have been used to enhance healing and reduce pain in plastic, orthopedic, and maxillofacial surgeries. However, there is a lack of evidence regarding the potential role of PC in the treatment of chronic oral mucosal lesions.

The aim of this work is to highlight the therapeutic potentials of platelet concentrates in management of such conditions, focusing on its immune regulatory role.

Biography

Dr. Abdel Hameed Hijazi is an Oral Medicine specialist. He was born in 1988, completed his dental degree in 2011 from Aleppo, Syria. After that, he pursued his postgraduate studies at Cairo University, Egypt. His work focused on immune disorders affecting oral cavity, and for the last couple of years he started a career in medical education in Faculty of Dentistry, Sinai University. His future research will be aimed to highlight the importance as well enhancing biological therapy for autoimmune diseases affecting oral cavity.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Seroprevalence of HBV/HCV-HIV, immune response and associated risk factors during anti-retroviral therapy in HIV patients and hepatitis B or C virus co-infection

Ndifontiayong Adamu Ndongho

Dschang University, Cameroon

Hepatitis B (HBV) and C (HCV) are two among other forms of infections for which co-infection in HIV has been associated with alteration of the immune response, increased risk of progression to liver diseases and increased risk of hepatotoxicity associated to antiretroviral therapy. This study was aim to establish the prevalence of hepatitis B surface antigen (HBsAg) and hepatitis C antibody (HCVAb) among HIV patients, treatment outcomes and possible risk factors in Kumba Health, in the South West Region of Cameroon.

We performed a systematic screening using Rapid Diagnostic Test, for HBsAg and HCVAb among 299 HIV patients enrolled at the treatment centers in Kumba Health District with all positives for HBV or HCV confirmed by the ELISA and results analyzed using SPSS version 20. Out of the 299 participants, 36 (12.0%) were positive for HBV and 12 (4%) for HCV by both RDT and ELISA, out of which 52 HIV patients, 36 HIV/HBV and 12 HIV/HCV patients were involved in the prospective cohort study for 24 months which permitted monitored the immune response (CD4 counts and viral load test), as well as variation of biochemical parameters (ALAT/ASAT, albumin, bilirubine, creatinine) and weights of the studied participants. There were positive variations in all the biomarkers and immune response measurement which differed among the different groups and so this result could be used for health decisions regarding co-infecteds.

Biography

Dr. Ndifontiayong Adamu Ndongho has completed his PhD at the age of 33 years from Dschang University and is a Senior Public Health Administrator from the National School of Administration and Magistracy Yaounde. He is the Chief of Bureau Health, Focal Point Disease Surveillance in the South West Region of Cameroon. He is a Frontline field Epidemiologist and an expert in Incidence and Risk management. He has published articles in International Journals, a speaker in International Conferences and a Reviewer.

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Statistical inference to the parameter of the Akshaya distribution under competing risks data with application HIV infection to AIDS

Ahlam Hamdy Tolba[1], Dina A. Ramadan[1] and **Ehab M. Almetwally[2,3]**

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[2]Department of Statistics, Delta University for Science and Technology, Egypt
[3]Cairo University, Egypt

This paper takes into consideration statistical inferences in competing risk models with Akshaya sub-distributions based on the type-II censoring scheme. It is supposed to be the k causes of failures. In the analysis of point and interval estimations of all model parameters, maximum likelihood and Bayesian procedures are applied. The Gibbs within Metropolis–Hasting sampler's procedure is applied using the Markov chain Monte Carlo (MCMC) technique to get the Bayes estimates of the unknown parameters, their credible intervals (CRIs) and to estimate the relative risks. Furthermore, the survivor functions for subsystems and the overall system are evaluated. Finally, areal-life data set, which represents the times (in years) from HIV infection to AIDS and death in 329 men who had sex with men (MSM), is considered an application of the proposed methods.

Biography

My name is Ahlam H. Tolba, and I currently work as an assistant professor of statistics in the mathematical department at the faculty of science at Mansoura University in Egypt. I began my scientific career in 2009, or close to 14 years ago.

I have focused on using statistics tools to become a valuable problem-solving tool for sustainable living and disease treatments, which has led me to the most significant points that are relevant to our actual real-life problems or pandemics.

While conducting my own independent and cooperative research, I became increasingly motivated to achieve the best possible results during my graduate studies by utilizing creative solutions that would improve the study of the sustainability of our environment and our way of life.

For furthering the arguments and objectives of my research, I refer to the most valuable and significant statistical techniques, including distributions, reliability models, survival models, competing risk models, regression competing risk models, shock models, methods of estimation, and simulations.

I recognize myself as a young researcher who has had 20 reliability analysis papers published in internationally recognized journals for long-term goals and human life while adhering to our life objectives.

In several publications, including: Symmetry, Axioms, Land, Electronic, and Mathematics, MDPI journals, Statistics and Probability, Mathematics and Information Science, NSP journals, and the Journal of Mathematical Techniques and Computational Mathematics, I have worked as a volunteer reviewer.

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Effectiveness of purple LED for inactivation of *Bacillus Subtilis* and *Escherichia Coli* bacteria *in vitro* sterilizers

Ahmad Khalil Yaqubi[1], Suryani Dyah Astuti[2], Perwira Annissa Dyah Permatasari[3] and **Andi Hamim Zaidan[4]**

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[3]*Deapartemen of Mathematics, Airlangga University, Indonesia*
[4]*Department of Physics, Sepuluh Nopember Institute of Technology, Indonesia*

Bacteria are inactivated using a technique called photodynamic inactivation, which combines light with a photosensitizer with the right spectrum. The objective of this study is to ascertain the efficiency of purple LEDs for photo inactivating Bacillus subtilis and Escherichia coli bacteria as well as the ideal purple LED exposure energy density. This study technique involves exposing bacteria to purple LED radiation. Two elements of variation are used during irradiation. The first variation is the illumination variation at distances of 3 cm, 6 cm, 9 cm, and 12 cm. The second variation involves changing the amount of radiation for 30, 60, 90, and 120 minutes. The Total Plate Count (TPC) method was used to count the number of colonies. Statistical tests were utilized in data analysis, namely the One Way Anova test (analysis of variance). The results of this study indicated that 395 nm purple LED irradiation caused a decrease in Log CFU/mL of Bacillus subtilis and Escherichia coli bacteria. Inactivation of Bacillus subtilis bacteria showed a higher mortality percentage than Escherichia coli bacteria. Changes in other irradiation distances also showed a higher percentage of death for Bacillus subtilis bacteria than Escherichia coli bacteria. The highest percentage of death was 98.5% for Bacillus subtilis bacteria and 94.3% for Escherichia coli bacteria at position C with an irradiation distance of 3 cm and an energy density of 524 J/cm2 with an LED exposure time of 120 minutes. This shows that the percentage of death of bacteria Bacillus subtilis and Escherichia coli increased with increasing doses of LED energy with the greatest percentage of death in Gram-positive bacteria Bacillus subtilis.

Biography

Doctoral degree student in biophysics, master of science in condensed matter physics, holding a diploma in English and information technology, and with three years of working experience in multicultural environments and organizations.

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How probiotic-educated mesenchymal stem/stromal cells affect Th17/Treg axis in lupus model mice

Akram Hoseinzadeh[1], Seyed-Alireza Esmaeili[1,2], Zahra Rezaieyazdi[1,3], Mahmoud Mahmoudi[1,2], Jalil Tavakol Afshari[1] and **Fahimeh Lavi Arab[1]**

[1]Department of Immunology, Mashhad University of Medical Sciences, Iran
[2]Immunology Research Center, Mashhad University of Medical Sciences, Iran
[3]Department of Rheumatology, Mashhad University of Medical Science, Iran

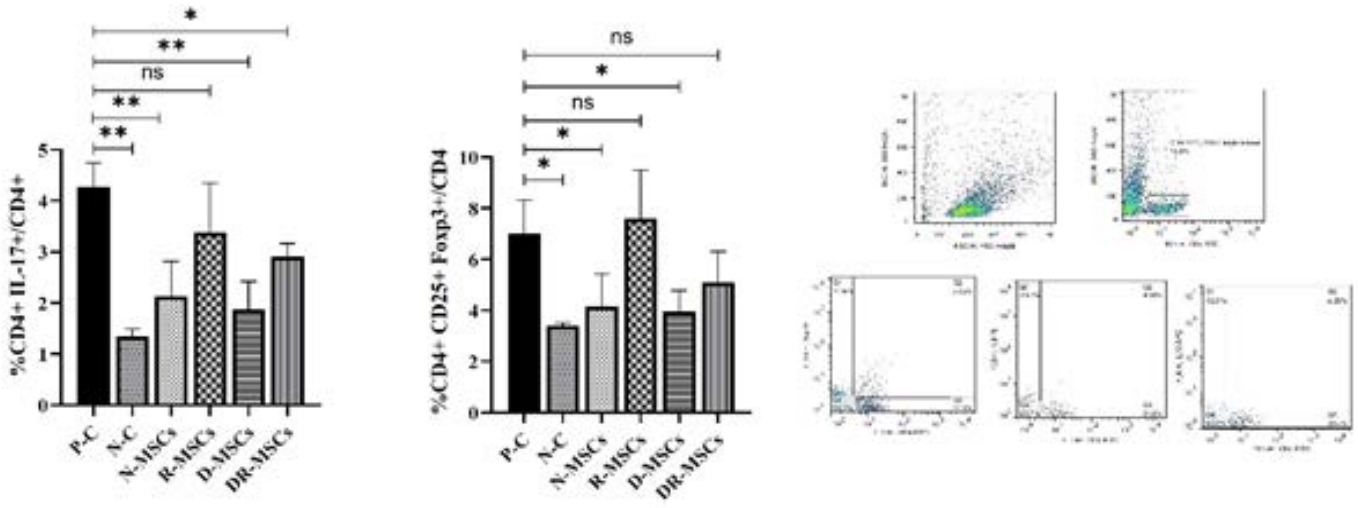
Background: The objective of this investigation was to determine whether the use of tolerogenic probiotics in the training of mesenchymal stem cells (MSCs) could alter their immunomodulatory potential in an induced lupus mice model.

Methods: The Pristane-induced lupus (PIL) mice model was utilized as a means to simulate autoinflammatory disease. Bone marrow (BM) MSCs from healthy BALB/c mice were isolated, cultured *in vitro*, and then identified and validated using flow cytometry and cytodifferentiation. Subsequently, Lactobacillus Rhamnosus, Lactobacillus Delbrueckii, and a blend of two probiotics were employed to treat the MSCs for a time period of 48 hours in the third passage. Thereafter, six months' post Pristane injection, the treated-MSCs were transplanted and the flow cytometry technique was utilized to evaluate the percentage of Th17/Treg cell subsets in splenocytes. Multiple comparisons were performed using Analysis of Variance (ANOVA) followed by post hoc Tukey's test.

Results: According to the study's results, it appears that Lactobacillus delbrueckii is capable of enhancing the suppression of cell proliferation in naive MSCs, in the case of the lupus microenvironment. On the other hand, the efficacy of Lactobacillus rhamnosus in this field was found to be limited. Nevertheless, treated MSCs with a combination of both probiotics resulted in distinct responses. Hence, it can be argued that these probiotics exhibit promise in the modulation of sterile inflammation, with respect to both its reduction and induction.

Conclusion: The findings of this study indicate that MSCs trained with probiotics demonstrate different capacities in relation to their effect on the index profile of lupus-like disease, in contrast to their untrained counterparts.

Figure 1. Flow cytometric analysis to evaluate the effect of engrafted MSCs on the frequency of splenocytes. A representative gating scheme and representative dot plots are also presented. Th17, and Treg percentages were significantly higher in the P-C group than in the N-C group. Transplantation of naïve MSCs and pre-exposure MSCs to L. delbrueckii significantly decreased the percentage of Treg and Th17 cells compared with the P-C group. However, there was no significant difference between the percentage of Th17 and Treg cells of mice treated with pre-exposure MSCs to L. rhamnosus with those of the P-C group. Furthermore, the percentage of



Th17 cells in the DR-MSCs group was significantly reduced. However, no significant differences were observed regarding the percentage of Treg cells between the DR-MSCs and P-C groups. These findings support the hypothesis that bacteria can interact with MSCs and educate MSCs with potent immunosuppressive and immunomodulatory properties. Interestingly, a mix of bacteria did not have a similar effect as R-MSCs or D-MSCs. Tukey's multiple comparisons were used to determine the relationship between the variable's means. N-C: Negative Control (Healthy mice treated with PBS); P-C: Positive Control (Pristane-immunized mice treated with PBS); N-MSCs (Naïve MSCs without any interventions); R-MSCs: MSCs exposed to lactobacillus rhamnosus; D-MSCs: MSCs exposed to lactobacillus delbrueckii; DR-MSCs: MSCs exposed to a mixture of lactobacillus rhamnosus and delbrueckii. Data were presented as Mean ± Standard Error of the Mean (SEM). P values of ≤ 0.05 were considered significant. (*P ≤ 0.05, **P ≤ 0.01, ***P ≤0.001).

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Malaria vector feeding, peak biting time and resting place preference behaviors in line with indoor based intervention tools and its implication: Scenario from selected sentinel sites of Ethiopia

Alemnesh Hailemariam Bedasso[1], Abebe Asale Gutto[2], Abate Waldetensai[1], Araya Eukubay[1], Getachew Eticha Bokore[1], Solomon Kinde[1], Fekadu Gemechu[1], Yared Debebe[1], Mesfin Aklilu[1], Geremew Tasew[1], Fekadu Massebo[6], Abebe Teshome[3], Tilahun Kebede[3], Bedri Abdulatif[3], Achamyelesh Sisay[3], Hiwot Solomon[3] and **Eliningaya J. Kweka[4,5]**

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[2]International Center of Insect Physiology and Ecology, Ethiopia
[3]Federal Ministry of Health, Ethiopia
[4]Department of Medical Parasitology, Catholic University of Health and Allied Sciences-Bugando, Tanzania
[5]Tropical Pesticides Research Institute, Tanzania
[6]Arba Minch University, Ethiopia

In Ethiopia, malaria incidence has significantly reduced in the past decade through the combined use of conventional vector control approaches and treatment using antimalarial drugs. However, the sustainability of this achievement is threatened by the shift in biting and resting behaviors and emergence of insecticide resistance by the primary malaria vector. Therefore, continuous monitoring of the behaviour of malaria mosquitoes in different sentinel sites is crucial to design effective prevention and control methods in the local context. Entomological investigations were conducted in three sentinel sites for five consecutive months during the major malaria transmission season. The species composition, population dynamics, biting and resting behaviours of malaria vectors were determined using center for disease control and prevention (CDC) light trap, human landing catch (HLC), pyrethrum spray catch (PSC) and Pitfall shelter collection (PFS). Accordingly, 10 households for CDC, 10 households for PSC, 10 households for PFS and 5 households for HLC from each site were randomly enrolled for mosquito collection. A total of 8,297 anopheline mosquitoes were collected from the three sites, out of which 4,525 (54.5 %) were An. gambiae, s.l. 2,028 (24.4 %) were An. pharoensis, 160 (1.9 %) were An. funestus and the rest 1,584 (19 %) were other anophelines (An. coustani, An. cinerus and An. tenebrosus). No significant variation (P ¼ 0.476) was observed between indoor (25.2/trap-night and outdoor collections (20.1/trap-night). Six hundred seventy six (43.3%) of An. gambiae s.l. (primary vector) were collected between 18:00 and 22:00 h. Biting activity declined between 00:00 and 02:00 h. The national malaria control program should pay close attention to the shifting behavior of vector mosquitoes as the observed outdoor feeding tendency of the vector population could pose challenges to the indoor intervention tools IRS and LLINs.

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On the stability of the equilibrium positions of a system of differential equations describing a population of viruses and immune cells

Alexander Olegovich Ignatyev

Institute of Applied Mathematics and Mechanics, Russia

Mathematical models based on a clear understanding of biological interactions can give an unintuitive idea of the dynamics of the reaction of an infectious carrier to infectious agents and can offer new opportunities for experiments. The relationship between immunity and infection determines the development of many diseases. As stated in many articles, the essence of the immune response to the invasion of genetically alien material (antigen), including pathogens, consists in the production of specific material substrates (antibodies, killer cells), capable of neutralizing antigens. Based on this, we will consider an infectious disease as a conflict between the population of pathogens and the immune system of the body. A simple mathematical model can be useful for a better understanding of the disease and the development of a drug therapy used in treatment. Recently, some mathematical models have considered the epidemiology of chronic viral infections in a single person, and have revealed a number of new ideas in chronic viral infections, such as HIV infection, hepatitis and human viruses leukemia, such as T-lymphotropic virus. Clinical data show that for some human pathogens, such as HIV, hepatitis B and C, drug therapy is sometimes not effective and cannot completely destroy viruses in virus carriers (in hosts of viruses). One of the reasons for this is that these pathogens are able to weaken and suppress immune responses. Weakening of the immune response requires a long and even lifelong therapy. As an alternative strategy, drug therapy aimed at stimulating a virus-specific immune response is attracting more and more attention. Successful virus-specific immunity can provide sustained suppression of the virus in the absence of drugs, so long-term therapy will no longer be required. Following this idea, it became necessary to develop an optimal strategy of drug treatment leading to sustained immunity. Mathematical modeling plays an important role in this, as it helps to understand the interaction between viral replication and the immune response. In this presentation, a system of two differential equations with respect to variables representing a population of viruses and immune cells is considered. The equilibrium positions of this system are found and studied their Lyapunov stability.

Biography

I was born on April 11, 1951. After graduating from high school in 1968, I entered the Donetsk State University at the Faculty of Mathematics. In 1973 I graduated from the University and entered postgraduate studies at the Institute of Applied Mathematics and Mechanics of the Academy of Sciences of Ukraine. After graduating from graduate school, during all this time I have worked at the Institute of Applied Mathematics and Mechanics. In 1980 I defended my candidate's thesis, and in 1994 my doctoral dissertation. Currently I work at the Institute of Applied Mathematics and Mechanics as a head scientist.

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SARS-COV-2 removal rates from fresh cabbage during fridge storage, disinfection with neutral electrolyzed water and calcium hypochlorite

Aliasghar Vahidinia, F. Azizi jalilian, A. abdolahimahvar and **N. Ansari**

Hamadan University of Medical Sciences, Iran

Background: Studies have confirmed the presence of SARS-CoV-2 RNA in untreated human sewage, anal swabs, and stool samples of COVID-19 patients. Irrigation with contaminated wastewater, harvest operations, handling, processing, and sales increase the risk of COVID-19 transmission by fresh produce.

Materials and Methods: We employed RT-PCR to detect the presence of SARS-CoV-2 and ultrasonic waves to recover the virus from cabbage surfaces. The study was performed in two parts. Firstly, the viability of SARS-CoV-2 on cabbage during cold-storage was investigated. Secondly, cabbage samples were disinfected with calcium hypochlorite $Ca(ClO)_2$ and neutral electrolyzed water (NEW). Sodium thiosulfate was used to neutralize any residual chlorine. The second part of the study included three steps: I, Inoculation of cabbage samples with the virus followed by disinfection. II, Disinfection of cabbage samples followed by virus inoculation. III, Addition of the disinfectant to the virus suspension.

Results and Conclusions: The number of viral genome copies (nVGCs) decreased significantly during storage ($P<0.05$). The virus was detected after one week of cold storage which indicated that SARS-CoV-2 can preserve its infectivity even after a week of being kept on vegetables in the fridge. By comparing the use of NEW and $Ca(ClO)_2$ solutions, respectively, we highlight that, at identical concentrations, NEW was significantly more effective than $Ca(ClO)_2$ in removing viral particles. Thus, given its other advantages such as on-site production, less adverse effects to the environment and lower production costs, NEW can emerge as a potential suitable substitute for $Ca(ClO)_2$ in SARS-CoV-2 removal from vegetables.

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Mir-21 expression in mice liver ischemic reperfusion

Alireza Salah

Higher Educational and Research Institute of Transfusion Medicine, Iran

Ischemia/reperfusion injury is a common phenomenon in liver damage, particularly in cadaveric liver transplantation. This study aims to investigate the expression pattern of miR-21 in liver ischemia/reperfusion during injury and recovery phases. In an animal model of ischemia/reperfusion simulation, 40 male Balb/c mice were divided into three groups and monitored for different time points after reperfusion. Liver tissue damage was assessed by histopathology, while plasma levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST), alkaline phosphatase (ALP), and total antioxidant capacity (TAC) and expression levels of miR-21, PDCD4 mRNA, TIA1 mRNA, and FASL mRNA were measured using RT-PCR in liver tissue and blood at different times after reperfusion.

Histopathology and plasma enzyme levels confirmed liver damage induced by ischemia/reperfusion injury. The expression level of miR-21 increased by twofold in the liver tissue during the inflammatory phase after 24 hours of reperfusion, and then decreased up to day 7 post-reperfusion. Afterwards, it slightly increased up to day 14 post-reperfusion, in parallel with the recovery of the liver damage.

The results suggest that miR-21 expression level in the liver and blood is a predictor of the extent of ischemia/reperfusion injury. The evaluation of the expression level of miR-21/PDCD4 signaling axis during liver ischemia/reperfusion injury and recovery showed a significant overexpression of miR-21 and PDCD4 mRNA in the liver 24 hours after reperfusion. Increased miR-21 expression could be a result of liver ischemia/reperfusion injury and recovery.

This study sheds light on the potential role of miR-21 in liver ischemia/reperfusion injury and recovery, and provides a basis for future investigations on the therapeutic potential of miR-21 in this context.

Biography

Alireza Salah is the technical deputy at Fars Blood Transfusion Organization, Shiraz, Iran. He received his Ph.D. in Physiology from Shiraz University, Iran, in 2020, and his M.Sc. in Physiology from the same university in 2013. He obtained his B.Sc. in Medical Laboratory Technology from Mashhad Medical University, Iran, in 1999, and his A.S. in Medical Laboratory Technology from Ahwaz Medical University, Iran, in 1996.

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Clinico-molecular investigation of *Staphylococcus* aureus and ethnoveterinary therapy of subclinical mastitis in lactating BEETAL goats

Aneela Zameer Durrani

Department of Veterinary Medicine, University of Veterinary and Animal Sciences, Pakistan

This study aimed for molecular detection of penicillin and multidrug-resistant genes of *S. aureus,* evaluation of associated risk factors and antimicrobial alternatives to treat subclinical mastitis (SCM). 450 milk samples were obtained from Beetal goats in Southern Punjab of Pakistan. SCM was diagnosed by the CMT. The data on risk factors was collected through observation and farmers' interviews on a predesigned questionnaire. *S. aureus* was isolated and identified from positive samples. Then confirmed by PCR. Antibiotic susceptibility was performed through the disc diffusion method. The sequence analysis was performed to genetically characterize the isolated *S. aureus strains.* For therapeutic trials, 30 lactating Beetal goats with SCM were divided into three groups. Group A was treated with Procaine penicillin, B with P. *emblica* fruit extract, and C with *C. nucifera* oil for five consecutive days. The collected data was analyzed by Chi-square using SPSS. Values for an association of risk factors were calculated by logistic regression, while the zone of inhibition and effect of treatments was analyzed by repeated one-way and two-way ANOVA, respectively. The overall prevalence of SCM was 20.28%. The milk yield and frequency, body condition, number and stage of lactation, udder/teat shape, dipping status, udder preparation, feed sharing, manure removal, de-worming, colostrum feeding, floor-type, grazing, and dystocia have a strong association with SCM in Beetal goats ($p<0.05$). The cure rate was highest in-group A, followed by C, and B based on CMT and bacteriological results ($p<0.05$). Milk yield, lactose, fat, protein, total solids, solid-not-fat, specific gravity, K, Mg, Ca, and P increases while electrical conductivity, pH, SCC, ALP, AP, titratable acidity, Na, and Cl decreases, with no effect on Zn and Cu from zero to 14th day in all three treatment groups. 331 *Staphylococcus* species were isolated; S. aureus was the most prevalent pathogen. Ciprofloxacin, enrofloxacin, oxytetracycline, and amoxicillin were highly susceptible, while streptomycin and floramphenicol exhibited high resistance. The prevalence of blaZ and 23S rRNA genes was 60% and 50%, respectively. On sequence analysis, isolates containing 23S rRNA were mostly like MDRSA strains isolated from milk samples in the UK and South Korea. This high prevalence is an alarming problem for both animal and public health. Herbal drugs can be used as a substitute for antibiotics. This study highlights instantaneous attention on control strategies for the spread of these pathogens among animal populations.

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The coupling of emerging innovative Microbiology technique and extreme understudied environment: A new frontiers for drug discovery

Atanas Pipite[1] and **Galana Siro**[2]

[1]*Massey University, New Zealand*
[2]*The University of the South Pacific, Fiji*

Emerging infectious diseases and multidrug-resistant human pathogens are becoming a major threat to global health. The Covid19 coronavirus pandemic illustrates the suffering and financial cost when antibiotics and vaccines are not available in time to fight a newly emerged pathogen. Therefore, there is an urgent need for new antibiotics to fight evolving bacterial infections. Nature encompasses millions of prokaryotes and eukaryotes with particularly high diversity in oceans and rainforests. The phylum Actinobacteria represents one of the largest phyla among the 30 major phyla currently recognized within the domain Bacteria. This phylum constitutes one of the largest of the 30 major phyla classified in the Domain Bacteria. There are 6 classes, 18 orders, 14 suborders, 63 families and 374 genera recorded in this phylum, with Streptomyces as the largest genus of this phylum. Approximately 39% of Actinobacteria have been sources of new natural products, of which around 80% are from the genus Streptomyces. Over the years, the rediscovery of known compounds has led to the shortage of novel compounds.

However, until now, only less than 1% of the actinomycetes have been identified, investigated and documented. Out of 500,000 natural compounds reported worldwide from biological sources, approximately 70,000 are microbially-derived compounds (both from bacteria and fungi), of which 29% is derived from actinomycetes. Approximately 60% of antibiotics applied, were isolated from actinomycetes between 1950 and 1970, exclusively from the genus Streptomyces.

A few years ago, as we entered the age of DNA sequencing and bioinformatics, the challenges were to isolate a new natural product from an uncultured and unidentified genus of bacteria that cannot be grown in the laboratory and predict the nucleotide sequence of a biosynthetic pathway. For this, the screening of metagenomic data has revealed a huge hidden potential in bacteria. Today, in the post-genomic era, the challenge is to activate these cryptic gene clusters in the laboratory, capable of coding for a plethora of previously undetected complex secondary metabolites. For the latter, various strategies have been developed to activate cryptic gene clusters in microorganisms that may lead to the identification of novel yet unidentified secondary metabolites for therapeutic and other use. Our talk will presents two of the strategies or directions that researchers are taking these days, namely: Bioprospecting in extremely unusual environments and expanding knowledge of culture-based techniques. Our talk will be supported by studies we have done over the years.

What will audience learn from your presentation?

- Understand the drug discovery pathways and various stakeholders in this Discipline.
- Understand the Major global public health threat: The Antimicrobial resistance (AMR).
- Understand the drug discovery research current state of the art and help researchers who are experts in diverse natural samples overcome the challenges impeding progress in finding new antibiotics in natural and extreme settings.

Biography

Atanas Pipite is a doctoral researcher at the University of Massey, New Zealand. He undertook his postgraduate studies in Fiji after obtaining a French Baccalaureate in 2015 from the University of New Caledonia. After completing his master's degree from the University of the South Pacific in Fiji, he joined the University of Massey and began conducting research for the isolation of a potential new bioactive natural product. He has recently published extensively in this area. His team studies the extreme environment in Oceania for the potential bioactive compound of actinomycetes. These bioactive secondary metabolites can become lead compounds that target genes or proteins that causes diseases in the drug discovery process.

Towards a TB free world

Bonam Wesley

Arogyavaram Medical Centre, India

Objective: To bring down the number of deaths due to Tb by 2023

The problem of Tuberculosis is a global emergency and TB is no.1 killer disease. More number of people are dying of TB than any other disease. More women and even bread winners are dying with Tuberculosis which is indirectly affecting the socioeconomic development of the Community.

Scope: Advances in Science have made it possible to treat TB infection in as little as one month and most forms of Drug Resistant TB in 4 to 6 months. Despite these advances and breakthroughs in TB Research, scientific effort is still needed to implement and scale up the short drug regimens. The shorter regimens face several barriers such as lack of awareness, poor access to TB care, limited capacity to diagnose and treat TB, and lack of availability of newer drugs that constitute some of these shorter regimens. Efforts to scale up these innovations have also been undermined.

Treat TB with shorter drug regimens, supervisory nutrition for the Patients with bio-fortified food supplements. Consumption of bio-fortified foods improves innate and adaptive immune function and also cognitive function especially in children. Recent efforts have focused in developing improved vaccine to prevent MTb infection. There is a renewed interest in BCG Revaccination of young adults. (Research Study done at Arogyavaram Medical Centre, Madanapalli on Nursing Students of the age group of 18 – 28 in 2015).

Results and Methods used: There is a potential Novel data to show that BCG revaccination in young adults in India enhance a MTb – specific CD4+ T cell immune signature potentially associated with controlled TB infection.

Biography

Name	:	Dr. B. Wesley
Date of birth	:	10th October 1951
Qualifications	:	B.Sc., MBBS, FAIMS, MRSH (London) Graduated from Christian Medical College, Vellore in the year 1980
Designation	:	Served as Medical Director in the Mission Hospitals for 42years, extending charitable service to poor Tb and HIV/AIDS patients
Address	:	Arogyavaram Medical Centre, Arogyavaram(Post)-517326,Madanapalli(M), Annamayya (Dist.) Andhra pradesh

Roles and Responsibilities till date:

- Invited to be the Director of Arogyavaram Medical Centre,Arogyavaram in 1990 till date(33 years) which is formerly known as Union Mission Tuberculosis Sanatorium, which has rendered a pioneering service in the treatment and research of Tuberculosis in this country.
- Executive Committee Member of Tb Association of India.
- President of NATCON 2022

Awards:

- Received "LUPIN ORIENTATION AWARD" at the National Tuberculosis and Chest Diseases conference on 21st December 2019 from Tuberculosis Association of India
- Awarded Charu Chandradas award by Tb Association of India

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Trend analysis of Hepatitis B and C among patients visiting health facility of Tigray, Ethiopia, 2014-2019

Brhane Berhe[1], Haftom Legese[1], Gebre Adhanom[1], Tsega Kahsay[1], Aderajew Gebrewahd[1], Guesh Gebremariam[1], Fitsum Mardu[1], Kebede Tesfay[1], Haftay Gebremedhin[2] and **Hadush Negash[1]**

[1]Department of Medical Laboratory Sciences, Adigrat University, Ethiopia
[2]Department of Public Health, Adigrat University, Ethiopia

Background: Hepatitis B and C viruses are the major public health concerns of the globe. The two hepatotropic viruses share common modes of transmission and their co-infection is common. Despite the provision of an effective prevention mechanism, the infections caused by these viruses remain a significant problem worldwide, particularly among developing countries like Ethiopia.

Methods: This institutional-based retrospective study was conducted between January 2014 December and December 2019 from documented laboratory logbooks of Adigrat general hospital serology laboratory, Tigray, Ethiopia. Data were collected and checked for completeness on a daily based, coded, entered, and cleaned using Epinfo version 7.1, exported and analyzed using SPSS version 23. Binary logistic regression analysis and Chi-square test (X2) assessed the association between dependent and independent variables. The corresponding variables with a P-value ($P < 0.05$) and 95% confidence interval were considered statistically significant.

Results: Out of 20,935 clinically suspected individuals, 20,622 were given specimens and tested for hepatitis B and C viruses with total completeness of 98.5%. The overall prevalence of hepatitis B and hepatitis C virus was found to be 3.57% (689/19,273) and 2.13% (30/1,405), respectively. The positivity rate of the hepatitis B virus was 8.0% (106/1317) and 3.24% (583/17,956) among males and females, respectively. Additionally, 2.49% (12/481) of males and 1.94% (18/924) of females were positive for hepatitis C virus infection. The overall prevalence of co-infection for both hepatitis B and hepatitis C virus was 7.4% (4/54). Sex and age were significantly associated with hepatitis B and C virus infection.

Conclusions: The overall prevalence of hepatitis B and C is low intermediate according to the WHO criteria. Although there was a fluctuating trend of hepatitis B and C through the years 2014-2019, the result shows moreover declining trend. Both hepatitis B and C share similar routes of transmission and affect all age categories but males were more highly affected than females. Therefore, awareness creation of the community about the methods of transmission, education about prevention, and control of hepatitis B and C virus infection, and improving coverage of youth friendly services in health facilities should be strengthened.

Biography

I am Brhane Berhe; I was born on NOV 6, 1990 G.C.in Adigrat Town, Ethiopia. We are nine siblings in the family. I am the sixth boys. My mother's name is Fotiyen Belay and my father's name is Berhe Aregawi. I took my elementary education in Comosbeha elementary school and my secondary education in Agazi located in Adigrat town. I had a happy childhood living. During weekends, we usually spend our day in the shepherd. We helped each other in our daily activities. My family was a happy and a loving family. I usually spend my free time in the library. Reading has been an important part in my life. Reading interesting literatures such as course matters and fiction books have been part of the entertainment aspect of my reading history. I usually spend my summer vacation in the home village of my father. My hobbies are reading books, playing billiard and watching movies. My dream was to become a Medical Laboratory Scientist. I was able to pass the entrance examination at University of Gondar, Ethiopia and I had my first year as a Medical Laboratory Sciences student in 2012 G.C. I was able to graduate in Bachelor of Science in Medical Laboratory Sciences in 2015 G.C. After graduation, I had my self took the exam for assistant lecturer in Adigrat University, wherein I was able to pass the exam. By the year 2016, I was able to formal staff of Adigrat University as graduate assistant lecturer. After a month stay, I had myself taken written exam for Masters Degree candidate in Mekelle University, Ethiopia in 2016 G.C. I was able to pass the entrance exam and had my second degree in Medical Parasitology specialty in 2017 G.C. Since August 2017 G.C I was servicing as Lecturer and researcher Adigrat University.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Foliar application of nanoclay promotes potato (*Solanum tuberosum* L.) growth and induces systemic resistance against potato virus Y

Dalia G. Aseel[1], Ahmed Abdelkhalek[1], Fatimah O. Alotibi[2], Marwa A. Samy[1], Abdulaziz A. Al-Askar[2], Amr A. Arishi[3] and **Elsayed E. Hafez[1]**

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[2]Department of Botany and Microbiology, King Saud University, Saudi Arabia
[3]The University of Western Australia, Australia

Potato virus Y (PVY) is one of the most harmful phytopathogens. It causes big problems for potatoes and other important crops around the world. Nanoclays have been extensively studied for various biomedical applications. However, reports on their interactions with phytopathogens, particularly viral infections, are still limited. In this study, the protective activity of Egyptian nanoclay (CE) and standard nanoclay (CS) against PVY was evaluated on potato (Solanum tuberosum L.) plants. Their physicochemical and morphological properties were examined with scanning electron microscopy (SEM), transmission electron microscopy (TEM), Fourier-transform infrared spectroscopy (FTIR), and energy dispersive spectrometer (EDS). SEM and TEM analyses revealed that CE has a spherical and hexagonal structure ranging from 20 to 80 nm in size, while CS has boulder-like and tubular structures of about 320 nm in size. FTIR and EDS showed that both nanoclay types have different functional groups and contain many vital plant nutrients that are necessary for every stage and process of the plant, including development, productivity, and metabolism. Under greenhouse conditions, a 1% nanoclay foliar application enhanced potato growth, reduced disease symptoms, and reduced PVY accumulation levels compared with non-treated plants. Significant increases in levels of antioxidant enzymes (PPO and POX) and considerable decreases in oxidative stress markers (MDA and H_2O_2) were also reported. Moreover, a significant increase in the transcriptional levels of defense-related genes (PAL-1, PR-5, and CHI-2) was observed. All experiment and analysis results indicate that the CE type is more effective than the CS type against PVY infection. Based on these results, the foliar applications of nanoclay could be used to manage plant viral infections in a way that is both effective and environmentally friendly. To our knowledge, this is the first report of the antiviral activity of the foliar application of nanoclay against PVY infection.

Biography

Dr. Aseel studied Genetics at the Alexandria University, Scholarship of MSc advent from Academy of Scientific Research and Technology (ASRT) in 2010. She received her PhD degree in 2015 at Arid Lands Cultivation Research Institute (ALCRI), City of Scientific Research and Technological Applications (SRTA,City). Dr. Aseel is an Associate Professor at the same institution. Preface: Patent (No.1261) of the Potato *Leafroll Virus* Diagnostic Group Kit. She is a member of scientific societies like the Egyptian Society for the Biological Control of pests, American Microbiology society. She has a reviewer in international journals like; frontiers in plant science, and Archives of Phytopathology and Plant Protection. She has published more than 40 research articles in SCI (E) journals.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Suppressive, curative, and prophylactic effects of *Maesa lanceolata* forssk. against rodent Malaria parasite *Plasmodium berghei*

Dejen Nureye[2], Eyob Tekalign[1], Getnet Tadege[2] and **Nebeyi Fisseha[2]**

[1]*Department of Medical Laboratory Sciences, Mizan-Tepi University, Ethiopia*
[2]*Department of Pharmacy, Mizan-Tepi University, Ethiopia*

Introduction: The artemisinin partial resistance is believed to be spread to artemisinin-based combination therapy partner drugs. As a result, new antiplasmodial compounds are required to treat resistant malaria infections. In the invention of antimalarial substances, claimed medical plants are precious resources.

Objective: The current study was designed to assess the antiplasmodial effects of *Maesa lanceolata* in mice.

Methods: In this study, preliminary phytoconstituent and *in vivo* acute oral toxicity tests were done. Early infection, established infection, and residual infection tests were employed to determine the antimalarial effects of the test drugs. Three doses (200, 400, and 600 mg/kg) of the extracts were provided orally to the test mice. Analysis of variance (one-way) followed by post hoc Tukey's test was used to analyze the difference between and within groups.

Results: Terpenoids, tannins, saponins, flavonoids, and alkaloids were detected in the phytochemical constituent analysis. Both 80% methanolic crude extract and solvent fractions had no toxic result at the 2000 mg/kg dose. All test drug doses suppressed parasite levels in a significant manner at all tests. The activity of chloroform fraction (maximum percentage suppression, 81.28%) overwhelms the crude extract activity. The curative effects of 80% methanolic crude extract, with a maximum of 80.22% parasitemia suppression, were greater than its suppressive and prophylactic effects. The 400 mg/kg dose of chloroform fraction resulted in a maximum survival period (18 days) than other doses of tested materials.

Conclusion: The results of this investigation provide support for the activity of *M. lanceolata* leaf extract against malaria.

Biography

Mr. Dejen Nureye received his MSc from the Department of Pharmacology and Clinical Pharmacy, School of Pharmacy, Addis Ababa, Ethiopia. Currently, his is a PhD student in Pharmaceutical Sciences at School of Pharmacy, Jimma University. Since 2012 he works as assistant professor of Pharmacology at the School of Pharmacy, Mizan-Tepi University, South West, Ethiopia. He is an author of more than 29 peer-reviewed papers and one book chapter. He also acts as a peer-reviewer in scientific journals. He participated as oral presenter in five national and international conferences. His area of interest is drug discovery from natural products, hypertension, blood and blood products, Infectious disease like malaria and wound.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Anticipation of relapse and acute graft-versus-host disease after allogeneic peripheral blood stem cell transplantation: The fundamental role of antigen-presenting (Dendritic) cells

Ebtesam Mahmoud Elgezawy[6,7], Khalid Ali Nasif[1,2], Awad S Al Samghan[3], Nahla El-Sharkawy[4], Amr M Abass[5], Safaa A A Khaled[8], Mahmoud I Elbadry[9] and **Marwa M Thabet[6]**

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[2]Department of Biochemistry, Minia University, Egypt
[3]Department of Family and Community Medicine, King Khalid University, Saudi Arabia
[4]Department of Clinical Pathology, National Cancer Institute, Cairo University, Egypt
[5]Department of Medical Physiology, King Khalid University, Saudi Arabia
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[7]Immunohematology Consultant, AMCH, Saudi Arabia
[8]Department of Internal Medicine, Assiut University, Egypt
[9]Department of Internal Medicine, Sohag University, Egypt

Dendritic cells (DCs) are antigen-presenting cells. In humans two distinct lineages of DCs exist: DC1 and DC2. Efforts to explore the role of DCs in acute graft-versus-host disease (aGVHD) after allogeneic peripheral blood stem–cell transplantation (PBSCT) are gaining traction. However, further research is needed to identify particular lineages and their values in terms of developing an evidence-based aGVHD- or relapse-prevention strategy. We monitored DC counts and subsets in PBSC grafts while harvesting stem cells in recipients to elucidate their value in anticipating disease relapse or aGVHD.

We enrolled 29 participants. Using fluorescence-activated cell sorting, total counts/kg of CD34+, DCs, and DC subsets were analyzed in 29 PBSC-graft components using CMRF44, CD11c, and CD4 monoclonal antibodies (MoAbs).

In the 29 grafts, we detected a significant positive correlation ($P<0.01$) between DCs and both DC1 and DC2. Significantly higher counts ($P<0.01$) of DCs and DC1 in those who had developed aGVHD (nine cases) were also observed. Relapsed cases (two) were also associated with higher counts of DCs and DC2. A significant positive correlation ($P<0.05$), was recorded between DCs and DC1 counts and the day of myeloid engraftment, while this was not detected on the day of platelet engraftment. Myeloid engraftment transpired earlier in patients without aGVHD. Increased DC-graft numbers, particularly DC1 measured by CD11c Moabs, were associated with aGVHD. Recipients of higher numbers of CD4bright DCs had an increased risk of relapse after allogeneic PBSCT.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Applying a social-ecological model to understand factors impacting demand for childhood vaccinations in Nigeria, Uganda, and Guinea

Emmanuel Nespaul Odongo[3], James Bell[1], Belinda Lartey[1], Holly Exton-Smith[1], Marcos Fernandez[1], Natasha Darrell[1], Cassie Gardner[1], Emily Richards[1], Abolaji Akilo[2], Rigobert Kouadio[4] and **Sunny Sharma[1]**

[1]Ipsos Healthcare, UK
[2]Ipsos Nigeria, Nigeria
[3]Ipsos Uganda, Uganda
[4]Ciblage, Senegal

Low vaccination demand threatens global child mortality reduction. Demand frameworks prioritize primary caregiver decision-making. We used an adapted socio-ecological model to analyze 158 interviews with primary caregivers, fathers of young children, and community influencers in Nigeria, Uganda, and Guinea to better understand vaccine demand.

This study collected qualitative and quantitative data from Nigerian, Ugandan, and Guinea-Conakry mothers and fathers of infants. The qualitative phase participants were over 18 and had a child aged 2–4 (in Nigeria) or 1–3 (in Ghana) (in Guinea and Uganda). Convenience sampling was used to recruit the participants, and a moderator led a 90-minute discussion on household roles, child protection, and vaccination. Participants gave written consent. An honorarium for their time was provided. Each country's ethics boards approved the research.

The findings showered that the decision to vaccinate a child is informed by a primary caregiver's web of family and community relationships and a range of environmental and contextual factors. In addition, even though directly taking care of the child is seen as the mother's role, fathers are involved in decisions about child health. Fathers often grant permission for mothers to vaccinate children, or even for them to leave the house. This suggests that fathers have decision making powers over vaccination decisions and could act as an enabler or blocker. Also, belief in God's and traditional protection may in some cases lead to rejection and replacement of vaccination.

Low vaccination demand in many countries may lead to under-immunization and higher childhood mortality. This research provides guidance on how to design demand creation interventions for fathers. Linking vaccination with the financial and social success of the family and ensuring that encouragement to vaccinate is delivered by trusted community figures are likely to have a positive impact on completion of immunization schedules.

Biography

Emmanuel is a Development Research and Evaluation Consultant at Ipsos Limited, Uganda with over 10 years of international development experience in leading and managing evidence-based policy, program, country and research and development evaluations in various sectors including SRHR, WASH, Education, Financial Inclusion, Vaccination, renewable energy for Development agencies, UN agencies and governments in Uganda and across sub-Saharan Africa. He graduated with honors from Clarke University and Kyambogo University with Master of Science in Public Health and Development Studies. He currently a student of master's in management science (Monitoring and Evaluation) and Project Management Institute at Uganda Management Institute and PMI.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Biodegradable nanoparticles as drug delivery devices

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[2]Institute of Physiology and Pharmacology, University of Agriculture, Pakistan
[3]Department of Pharmacy, University of Agriculture, Pakistan
[4]Department of Pathobiology, Bahauddin Zakariya University, Pakistan

Nanobiotechnology is an emerging and innovative field of science, engineering and technology as it deals with properties on nanoscale dimension and can make revolution in applied science. Nanoparticles are used in novel drug delivery, diagnostics and imaging because of their adaptability and extensive properties. Throughout the world, biodegradable nanoparticles are considered as a carrier for site specific delivery of genes, drugs, vaccines and other biomolecules in the body. Here, we encompass biodegradable nanoparticles in resolving biocompatibility issues, improved vaccine or drug encapsulation, less toxicity and appropriate release profile for various vaccines, drugs, and biomolecules that are effectively used in the field of medicine. Furthermore, the use of these particles in the different disease therapies such as inflammatory diseases, cardiovascular diseases, infectious diseases, cerebral diseases, cancer, ophthalmic diseases and diabetes is reviewed. Efforts are focused on identifying the potential gaps in treatment failures and suggesting suitable way outs to combat these ailments. Furthermore, latest studies conducted in our laboratories are included such as methotrexate, gentamycin, hydroxychloroquine, pirarubicin loaded biodegradable nanoparticles as effective drug delivery devices, role of chitosan and poly lacto glycolic acid nanoparticles as detoxifying agents in pesticides poisoning as well as nutraceutical (quercetin, curcumarin, riboflavin) delivery is undertaken. Different nanoformulations has been prepared, characterized by zeta size, zeta potential, FTIR, TEM, SEM and evaluated for entrapment efficiency/drug release kinetics. Various *in-vitro* tests have been conducted to evaluate these nanoformulations while *in-vivo* evaluations have been performed in experimental laboratory animals following approvals of animal care and use committees. Results have indicated that biodegradable nanoparticles are suitable candidates for effective and safe delivery of these therapeutic agents and can be used for effective vaccine delivery.

Biography

Dr. Faqir Muhammad has earned his Doctor of Philosophy degree in 2004 from North Carolina State University U.S.A and M.Sc. (Hons.) and DVM degrees from University of Agriculture Faisalabad. Dr. Faqir Muhammad is working as Professor and Chairman, Department of Biosciences, Faculty of Veterinary Sciences, Bahauddin Zakariya University Multan. He has the experience of working as Research Assistant Professor at Kansas State University, USA for two years. He is a full member of the Society of Toxicology. He has been awarded with Star Award 2005, the millennium life time award 2008, research productivity award 2012. He has contributed a number of book chapters in international books. He has published more than 150 peer reviewed articles with an impact factor of 255 and more than 3500 citations to his credit. Dr. Faqir Muhammad has won various Research Projects from National Funding Agencies worth of more than Rs 14 million.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Quorum-quenching activity of some Iranian medicinal plants

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Department of Bacteriology and Virology, Shiraz University of Medical Sciences, Iran

Anti-quorum sensing (QS) or quorum quenching (QQ) is known as a new anti-bacterial strategy to combat bacterial infection. One of the best candidates for this strategy is a natural plant or traditional herbal medicine. This review aimed to summarize and introduce Iranian medicinal plants with anti-QS properties. Biomedical databases (PubMed, Scopus, Google Scholar and Web of sciences) were investigated to retrieve all related manuscripts published in English and Persian. Out of 65 documents, 47 papers were published during 2010–2020. We categorized and summarized 19 papers that particularly presented the anti-QS activity of Iranian medicinal plants. Based on our results, different studies have been completed on the QQ effects of medicinal plants. We identified 106 plant species with different properties in medicine that have been evaluated for anti-QS activities in Iran. The QQ effects of herbal extracts were identified through different *in vitro* examinations on biosensor and clinical bacterial strains. Only 35 medicinal plants have shown these effects at sub-MICs. Our review summarizes Iranian medicinal plants with anti-QS properties. Some of these herbal extracts showed anti-QS activity against biosensors, standard and clinical bacterial strains. This result is very important because QS systems can be considered as a new target for the development of new remedial strategies and it is a good opportunity to perform QQ studies to effectively combat bacterial infections in the future.

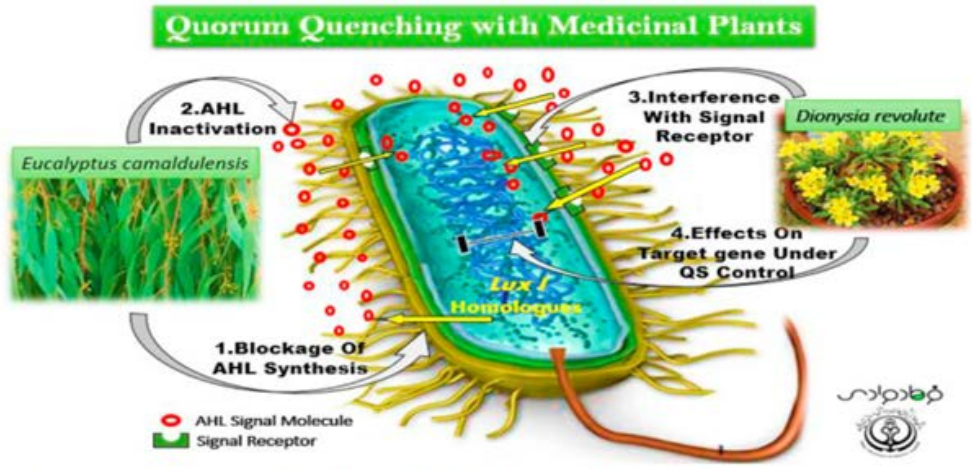

FIG. 1. Schematic of quorum-quenching strategies in a bacterial cell through traditional herbal medicines.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Endemicity and genetic diversity of Hepatitis Delta virus among pygmies in Cameroon, Central Africa

Yacouba Foupouapouognigni[3], Jacques Delors Toumansie Mfonkou[1,2], Onana Boyomo[2], Antoine Gessain[4] and Richard Njouom[1]

[1]Virology Service, Centre Pasteur of Cameroon, Cameroon
[2]Laboratory of Microbiology, University of Yaounde I, Cameroon
[3]Laboratory of Pharmacology and Toxicology, University of Yaounde I, Cameroon
[4]Department of Virology, Institut Pasteur, France

Objective: A single study conducted about three decades ago on hepatitis D virus (HDV) infection among Baka pygmies in Cameroon reported a very high anti-HDV antibodies prevalence of 46%, but HDV genetic diversity has not been studied in this population. The genetic diversity of strains from endemic ancient populations may help to understand the origin and evolutionary history of viruses. The present study aimed to investigate the HDV seroprevalence and the genetic diversity in three remote Cameroonian Pygmy populations with chronic HBV infection.

Results: An unusually high 69% (36/52) level of HDV infection was found among HBsAg-positive pygmies in Cameroon. HDV RNA was detected and sequenced only in 38.8% (14/36). The phylogenetic analysis revealed that 9 (64.3%) out of the 14 strains identified were classified as genotype 1 (HDV-1) and 5 (35.6%) as genotype 1 (HDV-7), respectively with a bootstrap value of 100%. The further analysis showed the co-circulation of highly diverse HDV genotypes HDV-1 and HDV-7 in this population. These results highlight the endemicity of HDV infection in Central Africa. The description of highly diverse HDV-1 and HDV-7 (African genotype) in this ancient population suggest an African origin of HDV. However, further studies are needed in these groups with larger sample size.

Biography

I am a Cameroonian. I am actually a senior lecturer at the University of Yaounde1. Before this position, I worked for about 15 years at Centre Pasteur du Cameroon as researcher. It would be a pleasure for me to attend this conference. My field of interest is Virology/immunology and molecular Biology

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GLOBAL VIROLOGY CONGRESS

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Hybrid attention based ensemble architecture for COVID-19 detection from chest X-ray image

Ganesh Yenurkar[1] and **Sandip Mal**[2]

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[2]*Vellore Institute of Technology, India*

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) has caused outbreaks of new coronavirus disease (COVID-19) around the world. Rapid and accurate detection of COVID-19 coronavirus is an important step in limiting the spread of the COVID-19 epidemic. To solve this problem, radiography techniques (such as chest X-rays and computed tomography (CT)) can play an important role in the early prediction of COVID-19 patients, which will help to treat patients in a timely manner. We aimed to quickly develop a highly efficient lightweight CNN architecture for detecting COVID-19-infected patients. The purpose of this paper is to propose a robust deep learning-based system for reliably detecting COVID-19 from chest X-ray images.

From the literature, it is found that most of the research activities applied convolutional neural network (CNN) models where the features generated by the last convolutional layer were directly passed to the classification models. In this paper, convolutional bidirectional long short-term memory (Conv Bi-LSTM) layer is used to encode the spatial dependency among the feature maps obtained from the last convolutional layer of the CNN and to improve the image representational capability of the model. Additionally, the spatial attention mechanism, is used to allocate weights to important local features. Then, these two mechanisms are employed on ensemble network model to improve their classification strength. Presence of local optimum will reduce the efficiency of classified output, therefore to avoid that the adaptive optimization algorithm is used on these classifiers' outputs to enhance the detection accuracy further. For experimental analysis, chest X-ray datasets, which are very prevalent for COVID-19 detection is considered. The performance evaluation is done in terms of precision, recall, F1-score, and test accuracy.

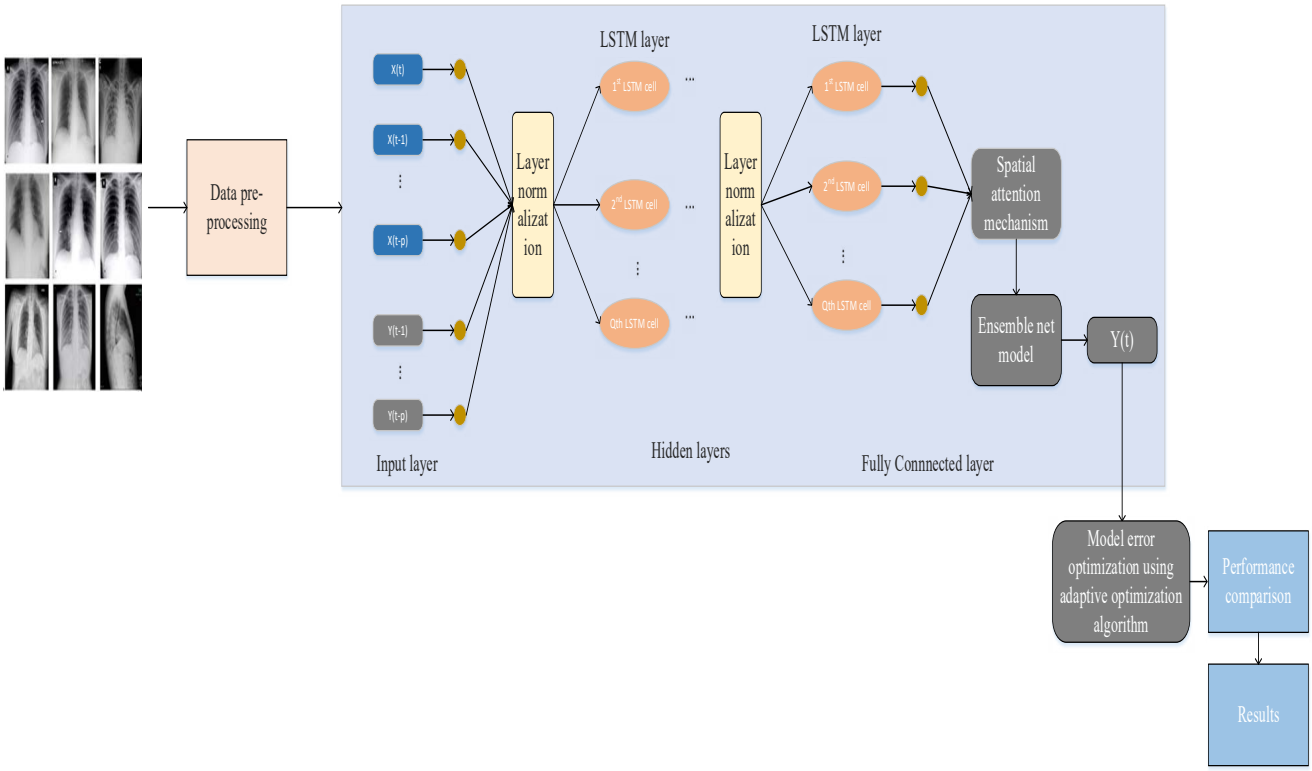

Figure 1: Proposed System

Biography

Prof. Ganesh K. Yenurkar is working as an Assistant Professor Computer Technology Department in the Yeshwantrao Chavan College of Engineering (YCCE), Nagpur, An Autonomous Institute affiliated with RTMNU Nagpur University (Maharashtra State) and pursuing PhD in the School of Computing Science & Engineering, VIT Bhopal. He has done his M.E. and B.E. from RTMNU Nagpur University. He has a number of publications in Book chapters and National/International journals of repute and also, he has attended and organized various Conference/Workshops/ FDP/SDSTTPs. He has more than 12 years of teaching experience. He has supervised more than 20 students for their internships and projects. He has recently published a research paper in SCIE Indexed journal and book chapter in Taylor and Francis. He has granted a copyright on subject PPTs, Project Posters and Lab Manuals. He is a Life Member of ISTE, IFERP, IAENG and member of ACM. He has also copy write his work in the form of project posters, subject PPTS and lab manuals. He has guided several UG students, and his research interest includes Machine Learning, Big Data, Artificial Intelligence.

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GLOBAL VIROLOGY CONGRESS

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In silico prediction of immunogenicity of chimeric and fully humanized antibodies

Hasnaa Bazhar, M. Mouhcine, Y.Kadil, I.Rahmoune and **H.Filali**

Pharmacy of Casablanca, Morocco

Introduction: The prediction of the immunogenicity of therapeutic proteins using computer simulation relies on identifying T cell epitopes that bind to MHC class II molecules. The goal of our research is to identify T cell epitopes of two monoclonal antibodies, one fully chimeric and the other fully human, as well as the prediction of the poses of obtained peptides in the peptide cavity of the pMHC-TCR complex.

Methods: The amino acid sequences of Rituximab and Ofatumumab antibody were obtained from drugbank database, the prediction of CD4 T cell epitopes with their immunogenicity scores were performed by Immune Epitope Data Base (IEDB) tool, the prediction method chosen on this tool is the combined method in order to identify the epitopes and calculate the immunogenicity score. Then by using the three-dimensional structures of the obtained peptides, we calculated the binding energy between the peptide and the TCR- pCMH complex by the Molecular Operation Environment (MOE) tool, afterwards we studied their stability within this complex.

Results: Ten peptides from the two proteins likely to be immunogenic were selected on the basis of their combined scores, by visual inspection of the peptides after docking, only one peptide was retained for the stability study. Our results show that Rituximab compared to ofatumumab has a good stability, suggesting that it has more affinity and therefore a high probability to induce immunogenicity.

Conclusion: In Silico immunogenicity prediction of therapeutic proteins is the first step to successfully identify MHC class II-restricted T cell epitopes, in order to open the field for further complementary studies to predict immunogenicity in preclinical humans.

Biography

My name is Hasnaa Bazhar, I obtained my baccalaureate in experimental sciences, then I joined the Faculty of Science where I obtained my Bachelor's degree in molecular and cellular biology, Then I applied for a master's degree at the Mohammed 6 University of Health Sciences, currently i am a PhD candidate at the Faculty of Medicine and Pharmacy of Casablanca in the Laboratory of Pharmacology and Clinical Toxicology.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Inhibitory effects of Leishmania Mexicana infection on MHC-I expression in bone marrow derived dendritic cells

Hossein Rezvan[1] and **Selman A Ali**[2]

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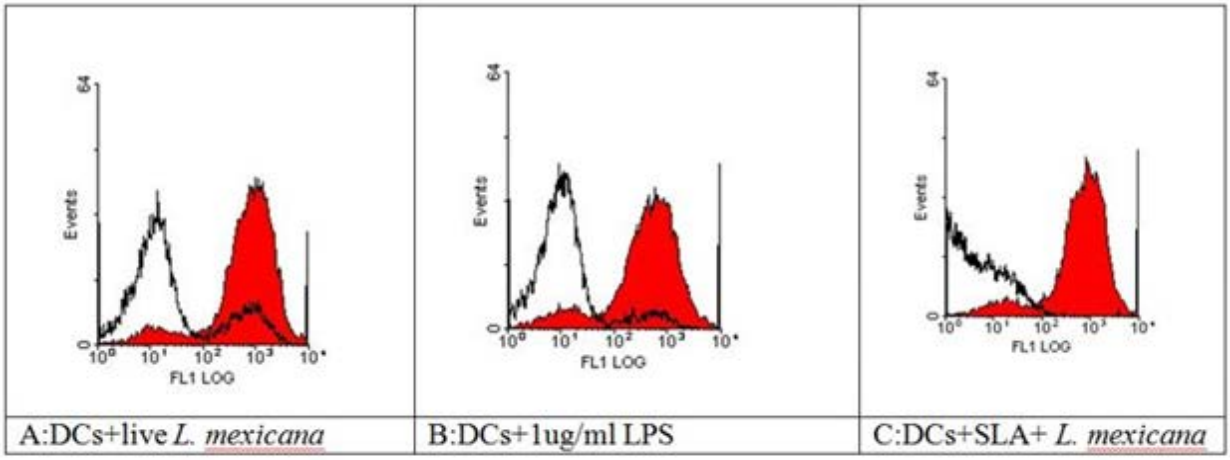
[2]*Nottingham Trent University, UK*

Leishmania is a parasite causing leishmaniasis with different clinical manifestations depending on the infectious species in many countries worldwide. The parasite is transmitted by the bite of over 30 sandfly species. It is estimated that 12 million people are currently infected with more than 20 *Leishmania* species and around 2 million infections occur yearly. Although different studies have been taken place to clear the interaction of the parasite with the immune system, many aspects of immunology of leishmaniasis is remained uncertain.

In the present study, bone marrow derived dendritic cells (DCs) were cultured *in vitro* and divided into different groups. The groups were separately infected with live or autoclaved *L. mexicana* or loaded with Soluble *Leishmania* Antigen (SLA). The expression of major histocompatibility complex class I (MHC-I) molecule was checked and compared on the cultured DCs using flow cytometry.

Results: Infection of *L. mexicana* caused a significant downregulation in expression of molecules where killed *Leishmania* or SLA could not induce suppression in expression of these molecules.

Conclusion: *L. mexicana* infection results in downregulation of MHC-I expression on bone marrow-derived dendritic cells indicating an important role for CD8+ T-cells in immune responses against this parasite.



Expression of MHC class I molecules in live Leishmania infected DCs

A: Non-infected DCs (red graph) show high expression of MHC class I where the expression of these molecules in *Leishmania* infected DCs (black graph) is highly down regulated.

B: The first group was loaded with 1µg/ml LPS and PBS was added to the second group. On day 7 both groups were checked for the expression of MHC-I. There was no difference between normal DC (red graph) and DCs loaded with LPS (black graph)

C: The expression of the MHC-I was compared between DCs loaded with SLA and infected with live *L. mexicana*. There was a significant decrease in expression of MHC-I in *Leishmania* infected DCs (black graph) compared to those treated with SLA (red graph).

Biography

Hossein Rezvan, male, graduated from Urmia University/Iran in Veterinary Medicine in 1993. He worked for Bu-Ali Sina University 1994-2023. He was appointed as the university representative in Jihad research group in 1996 and as the university advisor in medical research in 1998. In 2006, he finished his PhD in medical immunoparasitology with a work on Leishmania vaccines at the Nottingham Trent University/UK. He was appointed as vice chancellor in cultural affair of BU-Ali Sina university 91910 He has a lot of expertise on molecular and immunological techniques and has recently published a book with the name of "Studies on Immunology of Leishmania Mexicana" with LAP Lambert Academic Publishing. Now, he is the chancellor of Bu-Ali Sina University/Iran.

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GLOBAL VIROLOGY CONGRESS

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Epidemiological characteristics and genetic diversity of clinically isolated Dengue vector in Khyber Pakhtunkhwa, Pakistan

Ihteshamul Haq[1,2]

[1]*Department of Biotechnology and Genetic Engineering, Hazara University Mansehra, Pakistan*

[2]*Department of Biomedical Science, Universita Degli Studi Di Sassari, Italy*

Background: Dengue virus is the major vector of the dengue and yellow-fever viruses in Pakistan that was responsible for the sporadic epidemics of dengue fever.

Method: In this study, mosquitoes were collected from different parts of Swat and Peshawar and were characterized morphologically to identify different Aedes species.

Results: Out of collected 138 samples, 67.4% (93/138) were found to be Aedes aegypti while 26% (36/138) were characterized as Aedes albopictus mosquitoes whereas 6.6% (9/138) of the collected samples identified as non Aedes mosquitoes and hence excluded from the study. Using the morphological characterization key, 38.7% (36/93) were identified as male Aedes aegypti whereas the remaining 61.3% (57/93) were characterized as female mosquitoes. Genetic diversity among the collected Aedes aegypti samples were determined via the gold standard method, i.e., DNA sequencing. As the mitochondrial genome is maternally inherited through the female egg and very rarely undergoes recombination and is more diverse among species, a part of the mitochondrial gene (COI) was selected for sequencing. Based on the sequencing data, phylogenetic analysis was performed to check the possible origin of the mosquitoes.

Conclusion: The current study concluded that phylogenetic analysis revealed a strong association between the sequences of Swat and Peshawar with those of Asian countries, India, suggesting the possible transmission of these vector populations from India via Lahore as the sequence from Lahore were also clustered in the same group. The sequenced fragments were clustered distantly with African and European sequences. The variations in sequences from Swat, Peshawar and Lahore can give us a good picture of the vector evolution according to the changed climatic conditions of Swat. The findings of this study can be utilized for the control of adopting dengue virus vectors.

Biography

ihteshamul haq currently works at the Department of Biotechnology and Microbiology at Università degli Studi di Sassari Italy. Ihteshamul Haq does research in Infectious Diseases, Molecular Biology, Medical Genetics (especially neurogenetics, immunogenetics and Immunology), Biotechnology, pharmaceutical biotechnology, tissue culture and Bioinformatics. ihteshamul Haq have keen interest in Health Biotechnology.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Predictors and major health conditions for use of herbal medicines in Ashanti Region of Ghana

James Afriyie[1] and **Akwasi Kumi-Kyereme**[2]

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[2]*Department of Population and Health, University of Cape Coast, Ghana*

Objective: The study was to determine the predictors and major health conditions for herbal medicine use among adults in Ashanti Region of Ghana.

Scope: It assessed the prevalence, health conditions and factors that predicted the use of herbal medicines.

Method: In a cross sectional study, data were collected from 910 adults in the region from February to May, 2018 using a questionnaire. Multivariate logistic regression was used to determine predictors of herbal medicine use. Statistical significance was considered at $p < 0.05$.

Results: The proportion of respondents that had used herbal medicine within 1 year to the survey was 73.7%. Treatment of malaria (26.0%), body pains (17.3%), sexually transmitted diseases or genital infections (11.8%), and sexual weakness (6.8%) were the most common health conditions for which herbal medicines were used. Factors that predicted use of herbal medicines included living in a district (adjusted odds ratio [AOR] = 2,893, CI: 1.646 -5,076, $p < .05$) and being older than 20 years The other predictors were having the perception that herbal medicines work very well (AOR= 6.072, CI: 3.237 – 11.386, $p < .05$) or work somehow AOR= 3.525, CI: 1.885 – 6.591, $p < .05$) and having the belief that one could definitely (AOR= 5.084, CI: 2.952 – 8.754, $p < .05$) or maybe (AOR= 2.034, CI: 1.186 – 3.487, $p = .01$) use herbal medicine with ease[1].

Conclusions: The study observed a high prevalence of use of herbal medicine in the region, with the medicine being used mostly for the treatment of common diseases in the country. Location, age, and perception strongly influenced utilization of the medicines. These results call for more public education on the safety implications of use of herbal medicines and more empirical evidence on efficacy of herbal medicines on common health conditions in Ghana.

Biography

James Afriyie is a lecturer at the department of Biomedical Sciences, School of Allied Health Sciences, University of Cape Cost, Ghana. With a reproductive biology background, James has taught a number of biomedical science courses in his university for several years. His research areas include herbal products, reproductive biology, adolescent reproductive health, and childhood trauma. He has a couple of publications and some peer review services experience in these areas. During his pre-doctoral fellowship, James served as a member on some committees/ teams working on health issues in Minnesota, USA. In Ghana, he once served as the National Organizer of Ghana Public Health Association. His long experience in the classroom, his diverse research interests and some natural teaching talents make James a good speaker. He presented at the Abstract Session of the National HIV and AIDS Research Conference 2018: organized by Ghana AIDS Commission.

PEERS ALLEY MEDIA

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The purpose of temperature of fever in COVID -19

K M Yacob

Marma Health Centre, India

When the disease made by virus becomes a threat to life or organs blood circulation decreases, Temperature of fever will emerge to increase prevailing blood circulation. And it acts as a protective covering of the body to sustain life. When blood flow decreases to the brain, the patient becomes fainted-delirious. If we try to decreases the temperature of fever, the blood circulation will further be reduced. Blood circulation never increases without temperature increase. Delirious can never be cured without an increase in blood circulation. The temperature of fever is not a surplus temperature or it is not to be eliminated from the body. During fever, our body temperature increases like a brooding hen`s increased body temperature. The actual treatment to fever is to increase blood circulation. Two ways to increase blood circulation. 1. Never allow body temperature to lose 2. Apply heat from outside to the body. When the temperature produced by the body due to fever and heat which we applied on the body combines together, the blood circulation increases. Then the body will stop to produce heat to increase blood circulation. And the body will get extra heat from outside without any usage of energy. **How can we prove that the temperature of fever in Covid -19 is to increase blood circulation?** If we ask any type of question-related to fever by assuming that the temperature of fever is to increase blood circulation we will get a clear answer. If avoid or evade from this definition we will never get a proper answer to even a single question. If we do any type of treatment by assuming that the temperature of fever is to increase blood circulation, the body will accept, at the same time body will resist whatever treatment to decrease blood circulation. If we measure the heat energy used for which activities in fever, we will know the purpose of the temperature of fever. No further evidence is required to prove the temperature of fever in Covid -19 is to increase blood circulation.

Biography

A practicing physician in the field of healthcare in the state of Kerala in India for the last 32 years and very much interested in basic research. My interest is spread across the fever, inflammation and back pain. I am a writer. I already printed and published 10 books on these subjects. I wrote hundreds of articles in various magazines. After scientific studies, we have developed 8000 affirmative cross checking questions. It can explain all queries related to fever.

Speaker recognition performance: Challenges and barriers

Khamis A. Al-karawi

Diyala University, Iraq

The prevalence of COVID-19 and the use of face masks to prevent its transmission have posed significant challenges for speaker recognition systems. The implications of wearing masks on system performance in different environments and background noise levels are not fully understood. The face mask affects speech output, making it more challenging to comprehend speech while wearing one due to its frequency response and radiation qualities, which vary based on the mask's material and design. In this study, we aimed to understand how different face masks impact a state-of-the-art text-independent speaker verification system using an i-vector speaker identification system. Specifically, we recorded speech while individuals wore face masks and assessed their effects on speaker identification in a cafeteria setting. Preliminary results indicate that masks had minimal impact in low background noise, with an Equal Error Rate (EER) of 2.4–2.5% at 20dB Signal-to-Noise Ratio (SNR) for both masks compared to no mask at the same level. However, in noisy conditions (5dB SNR), accuracy decreased by 12.7–13.0% compared to situations without a mask, suggesting that while different masks performed similarly in low background noise levels, their distinctions became more noticeable in high noise levels. This research sheds light on the influence of facial coverings on speaker verification systems and highlights the importance of considering environmental factors, such as background noise levels, when assessing the impact of face masks on speaker recognition performance. Further investigations are needed to better understand the intricacies of mask effects on speaker identification accuracy in various scenarios.

Biography

Dr.Khamis Al-karawi Title: Acoustic Modeling Innovator and Speaker Verification Expert. Dr.Khamis A. Al-karawi was born in Iraq. He received a BCS from the University of Baghdad, in 1997 degrees in Computer Science and M.CS degree in Computer Science from the University of Pune, India, in 2010 and a PhD degree in data security from Salford University, United Kingdom, in 2018. Dr.Khamis Al-karawi is a leading researcher in the field of speaker recognition, specializing in acoustic modeling and speaker verification. With a background in signal processing and machine learning, He has made significant contributions to the development of advanced algorithms that accurately identify and authenticate individuals based on their unique vocal characteristics. His research has significantly improved the accuracy and efficiency of speaker identification systems, enabling applications in forensic investigations, voice-controlled technologies, and personalized user interfaces. As the head of a cutting-edge research lab, Prof. Patel collaborates with interdisciplinary teams to push the boundaries of voice biometrics, ultimately shaping the future of secure and user-friendly voice-enabled applications. With a background in computer science and pattern recognition, Dr. Johnson's work has paved the way for practical applications in law enforcement, speech analytics, and social robotics. Her efforts have significantly advanced the field, creating solutions that cater to real-world challenges in speaker recognition technology. As a professor at Diyala University, Dr. Al-karawi's research has influenced both academia and industry, paving the way for robust voice-based authentication systems and enhancing security measures across various domains.

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In vitro and *in vivo* anthelmintic effects of *Sterospermum kunthianum* (Cham-Holl) leaf extract against *Ascaridia galli* in experimentally infected broiler chickens

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[4]Department of Zoology, Ahmadu Bello University, Nigeria

This study was to assess the anthelminthic potential of Sterospermum kunthianum leaf extract against Ascaridia galli in experimentally infected broiler chickens. The extract and fractions were evaluated for *in vitro* inhibition and *in vivo* anthelmintic effects. Acute toxicity studies of extract revealed no sign of toxicity or death in birds at oral dose range of 1000–5000 and was considered safe. There was a concentration dependent decrease on inhibition of A. galli egg embryonation and deparasitization. At 100 mg/ml, albendazole (ALB) caused the highest inhibition of embryonation (195.3 ± 0.9) which was not significantly different from the decrease caused by crude methanol extract (CME) (188 ± 0.9), hexane fraction (HF) (177 ± 1.2) or ethyl acetate fraction (EAF) (168.3 ± 0.9). The highest inhibition rates (%) were 97, 94, 88 and 85 for ALB, CME, HF and EAF, respectively. The deparasitization obtained at day 21 in ALB (95.62%) treated birds was not significantly (P [0.05) different from the 81.27% and 89.24% obtained from the crude methanol treated birds. The deparasitization caused by CME at 400 mg/kg (89.24%) was significantly higher than the one caused by EAF at the same dose (50.19%). Day 21 post treatment, significantly (P \ 0.05) higher deparasitization was recorded for CME and HF at dosage of 400 mg/kg when compared to 200 mg/kg. Histopathology findings revealed necrosis of the mucosal gland and villi in chickens. In conclusion, the leaf extract and fractions S. kunthianum have been shown to possess anthelmintic activity.

Biography

I'm a zoologist/parasitologist by training (first degree zoologist/second degree parasitologist respectively); current a PhD student. My area of research interest is in parasitic zoonotic diseases especially those of wild life origin. I'm also interested in conservation (flora and fauna) due to the illegal cutting down of trees and destruction/killing of wildlife for fuel and source of meat (protein) and illegal trade especially in this part of the world (Africa and especially in Nigeria). I have carried out research in the field of parasitology (helminthology and protozooly) and have designed a project to focus on gastrointestinal and haemoparasite (ticks borne diseases) in camels and donkeys; I have published a number of my research so far with different journals which will be listed below.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

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COVID-19 vaccine acceptance and associated factors among health workers in West Guji Zone, Southern Ethiopia: Cross-sectional study

Lechisa Asefa Bishila[1], Hailu Lemma[1], Chala Daba[2], Degefa Dhengesu[1] and **Mohammedgezali Ibrahim[3]**

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[2]Departement of environmental health, Wollo University, Ethiopia
[3]Department of environmental health, Jimma University, Ethiopia

Background: Currently, different COVID-19 vaccines are being developed and distributed worldwide to increase the proportion of the vaccinated people and as a result to halt the pandemic. However, the vaccination progress is different from place to place even among health care workers due to variation in vaccine acceptance. Therefore, this study aimed to assess the acceptance of COVID-19 vaccine and determinant factors among healthcare workers in west Gujji zone, southern Ethiopia.

Method and materials: An institutional-based cross-sectional study design was employed to assess COVID-19 vaccine acceptance and associated factors among health care workers from July–August 2021. A simple random sampling technique was used to choose 421 representative healthcare workers from three hospitals in the west Guji Zone. The self-administrated questionnaire was used to collect data. Bivariate and multivariable logistic regression analyses were computed to identify factors associated with the acceptance of the COVID-19 vaccine. P-value < 0.05 was considered for significantly associated factors.

Result: From the representative health workers, 57%, 47.02%, and 57.9% of healthcare workers had good practice of COVID-19 prevention, adequate knowledge, and a positive attitude toward the COVID-19 vaccine consecutively. 38.1% of healthcare workers said they had a willingness to accept the COVI-19 vaccine. Profession (AOR-6, CI-2.92-8.22), previous history of vaccine side effects (AOR: 3.67, CI: 2.75- 11.41), positive attitude towards vaccine acceptance (AOR: 1.38, CI: 1.18-3.29), adequate knowledge towards COVID-19 vaccine (AOR: 3.33, CI: 1.36- 8.12), and adequate practice of COVID-19 prevention measure (AOR: 3.45, CI: 1.39- 8.61) were significant associated with COVID-19 vaccine acceptance.

Conclusion: The proportion of COVID-19 vaccine acceptance among health workers was found to be low. From the study variables, profession, previous history of vaccine side effects, positive attitude towards vaccine acceptance, adequate knowledge to ward off COVID-19 vaccine, and adequate practice of COVID-19 prevention measures were significantly associated with COVID-19 vaccine acceptance.

Biography

Lechisa Asefa has completed his MSC at the age of 2 years from Jimma University, Ethiopia. He is currently lecturer and researcher at Bule Hora University, also he is skill laboratory coordinator at Bule Hora University Institute of health. He has over six publications international journals reputable journal. He presented papers in national conferences.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

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Opioid requirement and pain intensity after mandibular surgeries with dexmedetomidine administration in two ways: Intraoperative infusion versus bolus injection

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[2]Department of Anesthesiology, Imam Reza Medical Research and Training Hospital, Iran

Purpose: The purpose of this study is to compare the opioid requirement and pain intensity after surgeries of mandibular fractures with administration of dexmedetomidine by two approaches of infusion and single bolus.

Methods: In this double-blind clinical trial, the participants were randomized and matched in terms of age and gender in two groups (infusion and bolus). In both groups, the amount of narcotic used, hemodynamic indices, oxygen saturation, and pain intensity were collected based on the ten-point Visual Analogue Scale (VAS) at 7 time points for 24 h. SPSS version 24 software was used for data analysis. A significance level of less than 5% was considered.

Results: A total of 40 patients were included in the study. There was no significant difference between the two groups in terms of gender, age, ASA class, and duration of surgery ($P>0.05$). There was no significant difference between the two groups in terms of nausea and vomiting and subsequently receiving anti-nausea medication ($P>0.05$). The need for opioid consumption after surgery was not different in two groups ($P>0.05$). Infusion of dexmedetomidine reduced postoperative pain more rapidly than its single bolus dose ($P<0.05$). However, over time, there was no significant difference between the two groups in terms of changes in oxygen saturation variables ($P>0.05$). Homodynamic indices including heart rate, systolic blood pressure, and diastolic blood pressure in the bolus group were significantly lower than the infusion group ($P<0.05$).

Conclusion: Administration of dexmedetomidine in the form of infusion can reduce postoperative pain better than bolus injection, with less probability of hypotension and bradycardia.

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miR-155 and miR-92 levels in ALL, post-transplant aGVHD, and CMV: Possible new treatment options

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Background: Acute lymphoblastic leukemia (ALL) is a malignancy that leads to altered blast cell proliferation, survival, and maturation and eventually to the lethal accumulation of leukemic cells. Recently, dysregulated expression of various micro-RNAs (miRNAs) has been reported in hematologic malignancies, especially ALL. Cytomegalovirus infection can induce ALL in otherwise healthy individuals, so a more detailed evaluation of its role in ALL-endemic areas like Iran is required.

Methods: In this cross-sectional study, 70 newly diagnosed adults with ALL were recruited. The expression level of microRNA-155(miR-155) and microRNA-92(miR-92) was evaluated by real-time SYBR Green PCR. The correlations between the miRNAs mentioned above and the severity of disease, CMV infection, and acute graft vs. host disease after hematopoietic stem cell transplantation (HSCT) were assessed. B cell and T cell ALL distinction in the level of miRNAs was provided.

Results: After the statistical analysis, our results indicated a marked increase in the expression of miR-155 and miR-92 in ALL patients vs. healthy controls (*P=0.002–*P=0.03, respectively). Also, it was shown that the expression of miR155 and miR-92 was higher in T cell ALL compared to B cell ALL (P=0.01–P=0.004, respectively), CMV seropositivity, and aGVHD.

Conclusion: Our study suggests that the plasma signature of microRNA expression may act as a powerful marker for diagnosis and prognosis, providing knowledge outside cytogenetics. Elevation of miR-155 in plasma can be a beneficial therapeutic target for ALL patients, with consideration of higher plasma levels of miR-92 and miR-155 in CMV+and post-HSCT aGVHD patients.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Effects of citral on serum inflammatory factors and liver gene expression of IL-6 and TNF-alpha in experimental diabetes

Mahsa Khosravibakhtyari, Maryam Hadadipour Zarandi, Hassan Sharifiyazdi and **Saeed Nazifi**

Department of Clinical Sciences, Shiraz University, Iran

Citral is the main ingredient of the lemongrass plant with anti-inflammatory properties. In this study, the effects of citral on reducing inflammation in experimental diabetes in rats were investigated. Forty rats were randomly divided into four groups. There were two control groups (healthy controls (H) and citral alone-treated control (HC)) and two diabetic groups (diabetes (D) and diabetes+citral treatment (DC)). After diabetes confirmation on day 7, treatment with citral (300 mg/kg) was started for 2 weeks by gavage in the DC and HC groups. On days 0, 7, and 21 of the study, inflammatory elements of blood serum, IL-6, TNF-α, haptoglobin, and α2-macroglobulin were compared between the four groups. Also, on day 21 of the study, the expression level of IL-6 and TNF-α in the liver tissue was analyzed by quantitative real-time PCR. On day 21 of the study, following treatment with citral for 14 days, there was a significant difference in the DC group's inflammatory factors compared to the D group ($P < 0.005$). However, no significant difference was observed in DC and the two control groups' inflammatory factors. Regarding gene expression, the levels of IL-6 and TNF-α in the liver were significantly downregulated in the DC group compared to those in the D group ($P < 0.05$). According to the results of this study, citral can be used as a suitable ingredient to reduce the inflammatory complications of diabetes.

Biography

I am veterinary clinical pathologist specialist graduated from school of veterinary medicine Shiraz University, Iran. I was working for two years in the referral laboratory at school of veterinary medicine of Shiraz University in the molecular section and running the real-time PCR samples and cell cultures. My interest in clinical pathology is cytology and I was working in the clinical pathology laboratory of the small animal specialized hospital of Shiraz University for four years. I can handle all sorts of laboratory procedures like hematology, biochemistry, ELIZA and PCR. I am living in Muscat, Sultanate of Oman now.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Evaluation of the impact of three different DNA extraction methods based on steel-bullet beating for the representation of the fungal community associated with fungal nail infection

Marjan Motamedi and **A.Amini**

Department of Parasitology and Mycology, Shiraz University of Medical Science, Iran

Background: One of the principal steps in the performance of PCR-based diagnostic assays is DNA extraction from the targeted infectious agents with high quality and quantity. Onychomycosis is a fungal nail infection that may involve any parts of the nail unit and is responsible for about 50% of all consultations for nail disorders. Considering the hard structure and keratinized tissue of nails, and also the lack of a standardized method for DNA extraction from the nail samples, the aim of this study is comparison three DNA extraction methods based on steel-bullet beating to extract DNA from nail.

Methods: *Ex vivo* onychomycosis model was developed using bovine hoof with *Candida albicans* and *Aspergillus flavus*. For two models, total DNA was extracted using the three different methods. In method 1, the extraction and purification were performed by steel-bullet beating and phenol chloroform protocol, respectively. In method 2, a freezing step was applied before beating. The purification step in method 3 was carried out using a commercial kit, although DNA extraction was done similarly to method 1 in that approach. To evaluate the efficacy of each method, the extracted genomic DNA was amplified with Polymerase Chain Reaction (PCR) using Internal Transcribed Spacer (ITS) regions. Moreover, 50 nail samples were evaluated for onychomycosis using direct microscopy examination as well as PCR in order to evaluate the diagnostic efficiency of the optimal DNA extraction method.

Results: Regarding the desirable quality of the extracted DNA, cost effectiveness, and simplicity, method 1 could be used to extract DNA effectively. Additionally, the obtained data showed that PCR had a higher detection rate of fungal agents in the nail samples than direct microscopic examination.

Conclusions: This study demonstrated that the mechanical disruption of the cell wall by steel-bullet beating is a useful and practical method to improve the quantity and quality of fungal DNA thorough the extraction process.

Biography

Marjan Motamedi obtained her PhD in Medical Mycology at Tehran University of Medical Sciences (TUMS), Iran. Whereupon she moved back to Shiraz, Iran, as an assistant professor. Since 2017, she has been a Professor of Medical Mycology at the School of Medicine at Shiraz University of Medical Sciences (SUMS). In January 2023 she conducted her sabbatical position in Vienna, Austria. Her main research interest lies in the area of detection of fungal infection by molecular methods, antifungal drugs, and the biology of fungal infection. She has authored >35 papers on the development of molecular diagnostic methods for fungal infection, fungal epidemiology, and antimicrobial activities.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

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Evaluation of the effectiveness of cerium nanoparticles as a potential adjuvant in veterinary rabies vaccine

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[2]Department of Virology, Tehran University of Medical Sciences, Iran
[3]Department of Nanobiotechnology, Pasteur Institute of Iran, Iran
[4]Department of Microbiology, Islamic Azad University, Iran
[5]Pasteur Institute of Iran, Iran
[6]Shahid Beheshti University of Medical Sciences, Iran

Background and Aim: The synthesis of nanoparticles is critical in several aspects of vaccinology. Numerous studies on the use of nanoparticles as adjuvants have recently been conducted. The primary goal of this study was to compare the efficacy of alum adjuvant with synthesized cerium nanoparticles (CeNPs) as an adjuvant in a veterinary rabies vaccination.

Materials and Methods: Aqueous cerium nitrate was used for purification by sonification to synthesize cerium nanoparticles. Then we used X-ray and electron microscopy to confirm the nature of synthetic nanoparticles. In the next section, we examined *in vitro* toxicity, adjuvanticity and immunogenic properties, the eliciting of neutralizing antibodies, and the production of interleukin-4. Synthesized CeNPs were confirmed through XRD, SEM, and TEM analysis.

Results: The prepared CeNPs were spherical with a diameter of less than 50 nm. As determined by the dynamic light scattering method, the zeta potential was 26.6 mV. No significant cytotoxic effects were observed at any of the tested concentrations. The neutralizing antibodies (NAbs) measured by the RFFIT method in the fourth group (killed virus formulated with CeNPs) also had a statistically significant difference compared to the negative control groups ($P \leq 0.01$). There was no significant difference in the level of interleukin-4 in the CeNPs group compared to the negative control groups ($P \geq 0.05$).

Conclusion: The paradigm clarified the adjuvanticity impact of synthesized CeNPs on the effectiveness of veterinary rabies vaccination with no *in vitro* toxicity.

PEERS ALLEY MEDIA

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Insight into the microstructural properties of bio-engineered concrete matrices and analysis by scanning electron microscopy

Md. Asifur Rahman[1] and **Md. Fahad Shahriar Zawad**[2]

[1]*Chittagong University of Engineering and Technology, Bangladesh*
[2]*Carleton University, Canada*

The most common weakness in concrete is cracking under stress or due to drying shrinkage and excessive permeability in marine environments. Several studies have been conducted to create durable concrete structures with self-healing capabilities having low permeability, but very few have used an eco-friendly approach at the same time. This research involves an attempt to improve the microstructural qualities of concrete by directly introducing *Bacillus cereus*, a gram-positive calcite precipitating bacteria, into the concrete mix as a microbial culture. To test and analyze the effect of bacterial culture on concrete qualities, 100 mm cubical concrete specimens of two different strength criteria (25 MPa, 35 MPa), with and without microbial culture, were made and cured for varying curing ages. In this type of study, an optimal optical culture density of 0.5 ± 0.1 was chosen because of maximum yield output in terms of calcite precipitating ability. For the manufacture of bacterial concrete, the ratios of potable water to microbial culture were 0:25 and 0:50. The specimens were tested for ultrasonic pulse velocity (UPV) and water absorption capacity (WAC) at eight different curing ages. According to UPV analysis, concrete specimens with larger percentages of microbial growth have faster pulse velocity than normal concrete, which is due to the influence of microstructural densification. Water absorption capacity testing revealed 40% less permeable concrete. SEM analysis revealed that the microbial concrete microstructure had more mineral calcite precipitation than the conventional concrete. SEM further revealed that as curing times increased, the CSH gel became well disseminated in the concrete matrix containing microbial culture. Considering all the findings, it is possible to infer that applying *Bacillus cereus* in concrete mix as microbial culture produces superior concrete genera than conventional concrete. As a result, this technology pertains to an environmentally beneficial way for building a long-lasting new-generation concrete in the near future.

Biography

Md. Asifur Rahman is a highly motivated and accomplished Civil Engineer specializing in Structural Engineering with a profound interest in promoting sustainable infrastructural development through advancements in concrete materials. Currently serving as a dedicated Lecturer at the esteemed Department of Civil Engineering, Chittagong University of Engineering & Technology (CUET), he has been contributing his expertise since 17th July 2022. Md. Asifur Rahman pursued his academic journey with exceptional diligence, culminating in the successful completion of a Bachelor of Science in Civil Engineering from Chittagong University of Engineering & Technology in 2021. Driven by his passion for sustainability in construction, Md. Asifur Rahman has actively engaged in cutting-edge research aimed at advancing concrete materials to foster sustainable infrastructural development. His research efforts have centered on exploring innovative approaches to enhance the durability, strength, and environmental impact of concrete materials. Through his work, he aspires to play a significant role in shaping the future of construction practices and creating more eco-friendly structures. Before joining the faculty at CUET, Md. Asifur Rahman served as a Lecturer at the Department of Civil Engineering, Dhaka University of Engineering & Technology (DUET), Gazipur, where he contributed his knowledge and expertise from 22nd February 2022 to 16th July 2022. During his tenure at DUET, he made valuable contributions to the academic community and actively engaged in research activities related to sustainable building materials. Additionally, during his time at DUET, he actively participated as a member of CRTS (Consultancy Research & Testing Services), where he provided essential testing services to government agencies, non-governmental organizations, and various private parties.

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Assessment of Bcl-xL, TAX, and HBZ gene expression in ATLL patients

Mohammad Mehdi Akbarin[2], Zahra Fajami[1], Houshang Rafatpanah[1], Samaneh Ramezani[1], Hossein Rahimi[3] and Seyed Abdolrahim Rezaee[1]

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[3]Hematology Department, Mashhad University of Medical Sciences, Iran

Adult T-cell leukemia/lymphoma is a malignancy with a poor prognosis caused by HTLV-1 infection. TAX and HBZ are two major viral proteins that may be involved in oncogenesis by disrupting apoptosis. Because Bcl-xL plays an integral role in the anti-apoptotic pathway, this study examines the interaction between host apoptosis and oncoproteins. We investigated 37 HTLV-1-infected individuals, including 18 asymptomatic and19ATLL subjects. mRNA was extracted and converted to cDNA from peripheral blood mononuclear cells (PBMCs), and then gene expression was determined using TaqMan qPCR. Moreover, the HTLV-1 proviral load was also measured using a commercial absolute quantification kit (Novin Gene, Iran). Data analysis revealed that the mean of TAX, HBZ, and PVL was significantly higher among the study groups (ATLL and carriers groups P= (0.003), P= (0.000), and P= (0.002) respectively). There was no statistical difference in Bcl-xL gene expression between studies groups (P=0.323). It is proposed that this anti-apoptotic pathway may not be directly involved in the development of ATLL lymphoma. TAX, HBZ gene expression, and PVL can be utilized as prognostic markers.

Biography

I recently completed my Ph.D. in Immuno-Virology from Mashhad University of Medical Sciences in 2022, where my research focused on understanding the molecular mechanisms and pathogenesis of HTLV-1 infection. I have gained in-depth knowledge of HTLV-1 virology, including viral replication, host-virus interactions, and the impact of viral proteins on cellular signaling pathways. My research has involved the use of various molecular biology techniques to investigate the oncogenic potential and immune evasion strategies employed by HTLV-1.

PEERS ALLEY MEDIA

GLOBAL VIROLOGY CONGRESS

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Unusual location of gouty arthritis with shoulder joint involvement in an older male patient: A rare case report

Mohammad Asees

Professional Labs, Palestine

Introduction: The formation of monosodium urate crystals in the synovial fluid of joints and soft tissue is a hallmark of gout. Although the axial spine has been reported to be affected, the peripheral joints are typically the focus of gout. Although it is unclear how common axial gout is, computed tomography (CT)-graphic evidence was found in 35% of individuals who had a history of chronic, poorly managed gout. The primary risk factor for repeated gout attacks is hyperuricemia, which is more common in mature men and is connected to the use of diuretics and alcohol, particularly beer and spirits. Serum uric acid levels exceeding 6.8 mg/Dl.

Methods: Case Report

Results: 73-year-old male who came with the chief complaint of right shoulder pain with a 2-week duration. The patient describes his pain as excruciating in nature, mostly occurring at night and awakening him from sleep. Upon admission, the physical assessment was unremarkable except for right shoulder pain and tenderness with movement in the absence of redness, swelling, and hotness. Laboratory evaluation revealed CRP of 111 mg/L, ESR of 122 Mm/hr, BUN of 32 mg/dl, creatinine of 1.4 mg/dl, uric acid of 13.8 mg/dl, and a normal white blood cell count. An arthrocentesis was performed, and analysis of the aspirated synovial fluid revealed the presence of yellow needle-shaped monosodium urate crystals under a light microscope (Figure 1) along with a white blood cell count of 2500 cell/microliter. A diagnosis of gout with right shoulder involvement was established. The patient was prescribed Prednisolone 40 mg/d for 10 days, Allopurinol 300 mg/d, and colchicine 0.5 mg/d.

Conclusions: The condition of gout affecting the shoulder joint is quite rare. According to past medical history and clinical manifestations, doctors and orthopedic surgeons should take gouty shoulder arthritis into consideration when there is serious erosion.

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GLOBAL VIROLOGY CONGRESS

September 11-12, 2023

Alteration in antioxidant status in slow and fast alleles of EPHX1 gene polymorphisms among wood workers

Mona Mohamed Taha, Eman Mohamed Shahy and **Heba Mahdy-Abdallah**

Department of Environmental and Occupational Medicine, Environment and Climate change Research Institute, Egypt

Occupational wood dust exposure may be associated with various health effects, especially in wood industry. These effects may be due to inducing oxidative stress which is related to inflammations. Biochemical assessment of antioxidant enzyme activities illustrated role of oxidative stress (OS) on its depletion. Super oxide dismutase, glutathione peroxidase (GPx) and catalase (CAT) were analyzed in 50 exposed workers and 50 control subjects. Also, macrophage inflammatory protein-2 was assessed among these workers as it was produced upon dust exposure. Microsomal epoxide hydrolase (EPHX1) enzyme shared in the protective mechanism against wood dust oxidative stress. It plays a dual role in the metabolism of environmental pollutants, detoxification, and bioactivation. Gene polymorphisms of EPHX1 may be associated with variations in enzyme activity. Polymorphisms in exons 3 and 4 have resulted in either decreased (slow conjugating allele) or increased (fast conjugating allele) activity *in vitro*. We aimed to evaluate the associations between EPHX1 polymorphisms and change in antioxidant status (SOD, CAT, and GPx) among wood dust exposed workers. EPHX1 genotyping in exon 3 and exon 4 polymorphisms was carried out by PCR-RFLP. Our result shows a significant reduction in enzymatic antioxidants (SOD, CAT, and GPx) levels with significant rise in MIP-2 levels in worker group. Also, there are significant variations in SOD, CAT, and GPx levels as well as in MIP-2 in different genotypes of EPHX polymorphisms in exon 3 or 4 (specially in Hist-Hist genotypes in both exons). We can conclude an alteration in antioxidant status in both slow and fast allele of EPHX gene polymorphisms with release of MIP-2 protein in wood workers.

Healthcare facilities of the Rohingya people and the local community: A comparative case study on Cox's Bazar

Muhammad Ferdaus

Brac University, Bangladesh

Bangladesh is amidst a refugee crisis since 2017 with approximately one million Rohingya refugees according to UNHCR arriving in the nation, creating high pressures on healthcare provisions for the local community, and displaying a noticeable cultural lag between the local and refugee community regarding healthcare systems. According to the Ministry of Health and Family Welfare (MOHFW) Bangladesh, dedicated healthcare facilities for Forcibly Displaced Myanmar Nationals (FDMN) in camps and the local community in Cox's Bazar have changed significantly. This continual change in healthcare culture makes the local community reluctant to accommodate the FDMN community.

This study will compare the two healthcare provisions and examine their effects on beneficiaries. We will perform a mixed-approach case study using stratified random sampling and primary and secondary data. In the first week of August 2023, we will collect primary data in Cox's Bazar utilizing surveys, focused groups, in-depth interviews, and key informant interviews with field experts.

Statistical tools will be used to analyze the quantitative data, and thematic analysis will be applied to analyze the qualitative data. Moreover, the preceding study by the researcher suggests that there has been revolutionary development regarding the healthcare facilities for the FDMN being highly impacted by humanitarian services, while its contrast with that of the local community is still undiscovered.

According to secondary data, FDMN service recipients outnumber local community recipients. Thus, studying the cultural differences between the local and refugee camp healthcare systems helps us identify what is lacking on each side and what must be overcome to sustain a successful healthcare agency during the FDMN crisis. The FDMN's first-hand accounts are crucial to understanding how healthcare is affected in clustered communities in Bangladeshi regions and how their medical consultations may harm Cox's Bazar's locals.

Biography

Muhammad Ferdaus is the Director of CARSHA (Cell for Adaptation, Resilience, Security, and Humanitarian Assistance) and Coordinator of the Postgraduate Programs in Disaster Management (PPDM) at Brac University, Dhaka. Mr Ferdaus served as a Co-Principal Investigator of LSHTM's Rohingya in Bangladesh project, which synthesized non-health sector information to assist health system responses to humanitarian displacement. Ferdaus is the Founder of Community Development for Peace (CDP), Dhaka, Bangladesh. Ferdaus is a Commonwealth scholar in the 2020-21 FY batch at the University of Birmingham, UK. His research and teaching focus on disaster management, conflict and security, humanitarian crises, international development, public health policies and volunteerism/youth development. He received his bachelor's in social work from Islamic University Kushtia, Bangladesh, a specialized certification in public safety (disaster management) from Harvard University and Bunker Hill College, Boston, USA, and had his MSc in disaster management from Brac University, Dhaka.

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Brain metastasis with a solitary lesion secondary to knee joint Ewing sarcoma: A case report

Muhammad Irfan

Nishtar Hospital, Pakistan

Brain metastasis from Ewing sarcoma is rare and can present with various symptoms. We present a 21-year-old female who underwent surgery for Ewing sarcoma in the knee joint and, after six months, was reported with complaints of headache and vomiting. Considering recommended investigations, metastatic Ewing sarcoma of the brain was diagnosed, and treatment protocol, such as a combination of surgery, chemotherapy, and radiation, was given. Our observation shows this is the first case reported with solitary metastatic brain lesions associated with Ewing sarcoma. Ewing sarcoma usually spreads to other body parts such as the lungs, bones, and lymph nodes. However, less than 5% of cases with metastasis to the central nervous system are reported in previous literature. The presence of a metastatic brain tumor secondary to a knee joint Ewing sarcoma is concerning and requires prompt medical attention. Our case report highlights the significance of considering Ewing sarcoma as a potential diagnosis in patients with a history of bone cancer who present with neurological symptoms. Early diagnosis and prompt treatment are critical for improving outcomes in this rare and aggressive malignancy.

Biography

Muhammad Irfan is ECFMG certified international medical graduate from Pakistan. He is currently doing postgraduate training at the Neurosurgery department in Nisthar Hospital, Multan Pakistan. He has published various research articles in high-impact PubMed-indexed journals.

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GLOBAL VIROLOGY CONGRESS

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Dengue virus protease affects cell homeostasis that leads to thrombocytopenia

Musturi Venkataramana

Department of Biotechnology and Bioinformatics, University of Hyderabad, India

Non-structural proteins coded by viral genomes play a crucial role in the respective virus life cycles. In this direction, proteases play more critical role in virus multiplication and regulating the host defense. The proteases coded by poliovirus, hepatitis C virus etc were found to cleave many key host factors and bring the host cells under their control. Dengue virus which circulates as four major serotypes and several sub-genotypes causes significant morbidity and mortality across the globe, but there is no specific vaccine or potential drug yet for the treatment. The dengue virus protease which is coded by the non-structural protein-3 (NS3) was shown to exist in two forms ie only NS3 and/or along with its co-factor NS2B ie NS2BNS3. In our studies, we found that NS3 consisting of mitochondrial transport sequence (MTS) enters the mitochondrial matrix and cleaves GrpEL1 which is a co-chaperone of mitochondrial heat shock protein-70 (mtHsp70). mtHsp70 is known to involve in protein folding, mitochondrial homeostasis etc. The levels of GrpEL1 were found to be significantly reduced in protease transfected and virus infected cells. The GrpEL1 levels were also found to be drastically reduced in dengue virus infected clinical samples which is more prominent in severe dengue cases (DHF&DSS). This reduction was found to correlate with the platelet number in the respective samples. Based on the above information we have analyzed the mitochondrial functions and found that the functions of mitochondria of protease transfected cells are impaired compared to the controls. Considering the above observations, it is concluded that the dengue virus protease plays a key role in the manifestations of thrombocytopenia and could be considered a prime target for drug development in order to control dengue virus infections at an appropriate time.

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FLC simulation of microchannels created by silver microneedles for enhanced drug delivery

Nimra Tariq

The Superior University Lahore, Pakistan

Microneedles are MEMS based microfluidic devices that have gained attention nowadays due to their adverse biomedical applications ranging from drug delivery to the skin and eye treatment and now even malaria tests are also been conducted using microneedles patches. Different materials like metal, polymer, silicon, etc. have been used to fabricate microneedles and tip diameter of different micron ranges has been made. In this research paper, FLC simulation of microchannels created by silver microneedles tip has been done by varying the length and tip radius of microneedle to determine the average depth and surface diameter of microchannels created in the skin when microneedles are inserted. The results developed show that the average depth of 150.5 μm and a surface diameter of 65.7 μm has been calculated when tip radius is of 5 μm and length of microneedles is of 650 μm. Thus, the variation recorded is 0.08% for percentage error in the calculated results and MATLAB simulation which confirms its accuracy.

Biography

Dr. Nimra Tariq- Lecturer, Faculty of Sciences. She has done her Ph.D. in Physics/Material Sciences. She has total of 12 journal and conference publications. Dr. Nimra has been awarded with Best Paper Award for her paper in International Conference. She has many achievements in her belt which include Gold Medal in Bachelors, Distinction in M.Phil. and Certification in Python Programming. Her research interest includes Medical Physics, Material Science, MEMS and Electronics. Her hobbies are learning new skills and traveling.

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An impact assessment of the use of aerial logistics to improve access to vaccines in the Western-North Region of Ghana

Pedro Kremer de Ryvola[1], F. Haruna[1], R.T. Sarpong[1], D. Agamah[1], J. Billy[2], K. Osei-Kwakye[2], P. Aidoo[1], D. Dodoo[1] and **M. Okoh-Owusu[2]**

[1]Zipline, Ghana

[2]Ghana Health Service, Ghana

Children's infectious disease prevention, particularly in Sub-Saharan Africa, faces significant hurdles due to vaccine supply chain challenges. Our study examines the impact of aerial logistics on vaccine availability and disease outcomes in Western North Region, Ghana.

Employing retrospective quasi-experimental and cross-sectional methods, we evaluated supply chain, programmatic, and clinical data from a randomly selected sample of 156 facilities, alongside district-level vaccination and health outcomes data from 2017–2021.

Our results indicate that aerial logistics significantly improved vaccine supply management, reducing vaccine stockout durations by 30% ($p<0.05$) and decreasing missed vaccination opportunities by 44% ($p<0.05$). Additionally, facilities utilizing aerial logistics reported increased satisfaction in vaccine access. Vaccination coverage improved between 13.1 and 37.5 percentage points for various vaccines in served districts. Notably, infectious diarrhea cases in children aged 5 to 9 years decreased by 41.6% ($p<0.05$).

In conclusion, aerial logistics significantly improved vaccine supply chain performance in the Western North Region of Ghana. This approach enhances health system resilience, increases vaccination coverage, and improves provider satisfaction levels, indicating potential applicability to other similar regions.

Biography

Dr. Kremer, a physician, epidemiologist, and public health expert, has substantial experience in developing and implementing global health solutions and research. His academic background includes a PhD in Epidemiology from the University of California, San Diego. At the Naval Health Research Center, he contributed significantly to epidemiologic research. He later worked with the Pan American Health Organization, focusing on global health diplomacy. As a Lead Scientist at Booz Allen Hamilton, he integrated real-world data into epidemiological research and data analysis. Currently, as the Head of Monitoring & Evaluation and Global Health Impact at Zipline, Dr. Kremer's work is centered on determining the impact of unmanned-aerial vehicle delivery systems. With a wide range of experience spanning healthcare system challenges, program design, and health diplomacy, he is a seasoned professional in the global health field.

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Interferons as a promising treatment for COVID-19: A meta-data study

Pramod Yadav

Amity University Noida, India

The ongoing COVID-19 pandemic, caused by SARS-CoV-2, has led to many deaths across the globe. Despite various supportive care measures, patients with underlying health conditions have high mortality rates. Interferons (IFNs) are potential therapeutic agents for SARS-CoV-2, due to their antiviral and immunomodulatory effects. This meta-data study aims to evaluate the role of IFNs as a treatment option, with details on their mechanisms of action, available data from clinical trials and challenges. We selected recently published research articles that systematically searched online databases for IFNs as a potential therapeutic drug. We found that IFNs have great potential in treating SARS-CoV-2 infection by modulating the host's immune response and inhibiting viral replication. IFN therapy was associated with reduced severity of disease and hospitalization ($p = 0.03$, ± 0.05) and ($p = 0.04$, ± 0.05) respectively. IFN therapy also showed a significant reduction in time to clinical improvement (TTCI) compared to placebo (median TTCI of 5 days vs. 7 days). However, due to limited data, more controlled and randomized trials are needed to confirm the efficacy and safety of IFN therapy. The optimal dosing and duration of IFN therapy also remain to be determined. Although further research is needed, the wait for ongoing clinical trial results under investigation is also important for a better understanding of IFN therapy.

Biography

Mr. Yadav is a highly skilled research assistant with ability in evaluation and a passion for improving health in the field of viral and bacterial disease. He has made significant contributions to the field through his research, particularly with his recent paper on Interferon. He has published several papers in various indexed journals and attended many National and International (virtual) conferences. In addition to this work, Mr. Yadav has also conducted research using a rabbit model to watch the secondary response against administer antigen followed by the validation of inject Ag concentration *in-vitro*. His dedication to understanding and combating viral and bacterial disease makes him an invaluable asset to the research community.

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Hepatitis B reactivation following eradication of HCV with Direct-Acting Antiviral Drugs (DAAs) in a cohort of patients from different institutions in Egypt

Reham Samir[1], Mohamed S Abdelbary[1], Saeed M El-Nahaas[1], Rasha M H Shahin[2], Mohammad El-Sayed[1], Yasmine Gaber[1], Omnia Tantawi[1], Naglaa A Zayed[1] and **Ayman Yosry[1]**

[1]Department of Endemic Medicine and Hepatology Unit, Cairo University, Egypt

[2]Department of Clinical Pathology, Cairo University, Egypt

Background: Concerns about HBV reactivation (HBVr) have been raised with the introduction of DAA for HCV treatment. The aim of the study was to assess the risk of HBVr in chronic HCV patients during or after DAA.

Methods: A cohort of 166 chronic HCV patients who were treated with SOF-based DAA regimens and initially positive for HBcAb total were evaluated; 10 HBsAg-positive, 156 had past HBV exposure (HBsAg-negative/HBcAb-positive). Laboratory investigations, including liver functions tests, HBV-DNA, LSM by Transient elastography, and ARFI together with serum markers of fibrosis; APRI and FIB-4 were done at baseline and after 12 weeks of DAAs therapy. HBV-DNA levels and liver functions were monitored for assessment of HBVr.

Results: Virological HBVr was diagnosed by ≥ 1 log10 IU/ml HBV-DNA levels in 2/166 patients (1.2%) among the whole HCV cohort, who were initially positive for HBsAg; 20%. Clinical HBVr (>3 folds liver enzyme elevation) was detected in one patient with virological HBVr. Conversely, none of past HBV-infected patients experienced HBVr. All patients achieved SVR12 and had a significant decline in serum transaminases, bilirubin, APRI, and LSM measurements after HCV eradication.

Conclusion: HBVr might be considered after successful eradication of HCV following DAAs therapy, especially among patients who are positive for HBsAg, while past HBV infection does not seem to be a predisposing condition to HBVr.

Biography

- Master of Science (MSc) in Hepato-Gastroenterology and Infectious Diseases
- Faculty of Medicine, Cairo University, Egypt
- Graduated with full marks and honours
- MD (PhD) degree in Hepato-Gastroenterology and Infectious Diseases
- Faculty of Medicine, Cairo University, Egypt
- Graduated with full marks and honours
- Lecturer of Infectious Diseases and Endemic Hepatology and Gastroenterology
- Kasr Al-Aini School of Medicine- Cairo University Hospitals Teaching and Research (clinical research physician) in Endemic hepatogastroenterology and infectious diseases department and Kasr Al-Ainy viral hepatitis centre where a wide variety of drug and clinical trials in the field of viral hepatitis are conducted.
- Clinical fellow of gastroenterology in Queen Elizabeth hospital in University of Birmingham hospitals trust

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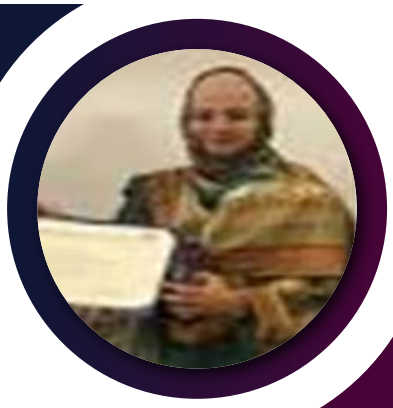

Rare and heterogeneous manifestations of leucocyte adhesion deficiency type 1: Report of two cases with diagnostic dilemmas and novel ITGB2 mutation

Sabahat Sarfaraz[2] and **Sabiha Anis**[1]

[1]*The Indus Hospital and Health Network (IHHN), Pakistan*

[2]*Department of Pathology, Dow University of Health Science, Pakistan*

Background: Primary immunodeficiency disorders (PID) are rare disorders with heterogeneous manifestations, overlapping with other diseases such as autoimmunity, malignancy, and infections. This makes the diagnosis very challenging and delays management. Leucocyte adhesion defects (LAD) are a group of PIDs in which patients lack adhesion molecules on leukocytes needed for their emigration through blood vessels to the site of infection. Patients with LAD can present with diverse clinical features including severe and life-threatening infections, early in life, and the absence of pus formation around infection or inflammation. There is often delayed umbilical cord separation, omphalitis, late wound healing, and a high white blood cell count. If not recognized and managed early, can lead to life-threatening complications and death.

Case Presentation: LAD 1 is characterized by homozygous pathogenic variants in the integrin subunit beta 2 (ITGB2) gene. We report two cases of LAD1 with unusual presentations (post-circumcision excessive bleeding and chronic inflammation of the right eye) which were confirmed by flow cytometric analysis and genetic testing. We found two disease-causing ITGB2 pathogenic variants in both cases

Conclusions: These cases highlight the importance of a multidisciplinary approach to recognizing clues in patients with uncommon manifestations of a rare disease. This approach initiates a proper diagnostic workup of primary immunodeficiency disorder leading to a better understanding of the disease, and appropriate patient counseling, and helps clinicians to be better equipped to deal with complications.

Biography

- Working as Assistant Professor of Pathology (immunology) at Dow International Medical College, Dow University of Health Sciences(DUHS)
- Established Transplant Immunology at DUHS. Supervising pre & post renal transplant immunological workup, (ABO compatibility, tissue typing, anti-HLA antibody detection, donor & recipient cross matching in order to prevent rejection of transplanted renal graft)
- Received letter of appreciation after 350 successful renal transplants by the Vice Chancellor of DUHS, March 2021.
- Conducting Allergy Clinic at DUHS
- Consulting cases of Autoimmunity and Primary Immunodeficiencies
- Teaching under and post-graduation students of DUHS
- Providing services as Academic Editor for "Medicine ®" (a fully open access journal) since 2020
- Reviewing articles for "Medicine ®" , Frontiers Cellular and Infection Microbiology & Journal of the College of Physicians and Surgeons Pakistan

- Oral Presentation on 17th International Congress of Immunology,18-23 October 2019. Organized by the International Union of Immunological Societies (IUIS) and hosted by the Chinese Society for Immunology (CSI).

Member Of:

- International Union of Immunological Societies (IUIS)
- Histopathology & Cytology Society of Pakistan (HCSP)/International
- Academy of Pathology (IAP)-Pakistan Division
- Pakistan Allergy Asthma & Immunology Society (PAAIS)
- Pakistan Biological safety Association (PBSA)
- Pakistan Association of Pathologist (PAP)
- Pakistan society for Immunology (PSI)

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Total hip replacement in active and inactive Tuberculosis hip: A systematic review

Sajid Ansari, Balgovind S. Raja, Robin Yadav, Anil Regmi, Arun Chaudhari Kurmi and **Roop Bhusan Kalia**

All India Institute of Medical Sciences, India

Tuberculosis of the hip joint is a debilitating disease that can result in severe joint destruction, eventually leading to painful arthritis of the hip. Total hip arthroplasty (THA) in patients with advanced arthritis offers a painless and mobile joint with good functional outcome but some aspects of THA in TB hip have been controversial in the past due to the concerns of disease reactivation, especially when disease activity is factored in. Various factors like timing of surgery, Antitubercular therapy (ATT) initiation timing, reactivation, complications etc needs to be evaluated very carefully before planning for such cases. We conducted this systematic review to evaluate evidences for THA in active and inactive diseases separately. Workup done before the surgical intervention, consensus on ATT, timing of surgery, mode of fixation - cemented or uncemented, one stage vs two stage THA, complication rates, role of inflammatory markers and outcome following THA were specifically evaluated in the available literature.

Biography

Dr Sajid's education includes a bachelor's degree (MBBS) in medicine and Masters in Orthopedic surgery (MS Orthopedics) from All India Institute of Medical Sciences, Rishikesh, India, which is a tertiary level teaching Institute and an Institute of national importance in medical education and research in India. Currently, he is pursuing a Mch degree in Joint replacement and reconstruction at the same institute, the 4th such candidate across India. In the field of arthroplasty, he deals with all primary hip, knee and shoulder arthroplasty and a part of all complex and revision arthroplasty surgery. Also, he has trained to handle primary cases in knee and shoulder arthroscopic surgeries. He has special interest in hip and knee preservation techniques and has done lot of research in osteonecrosis of femoral head and hip infections like tuberculosis. He has also been the resident in charge of the bone bank of the institute for the past 3 years. With a keen interest in publication, there are over 15 publications to his name in indexed and peer-reviewed journals.

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A case of undifferentiated connective tissue disease triggered by the Coronavirus disease vaccine

Saloni Gupta[1] and **Sonam Gupta**[2]

[1]*Jawaharlal Nehru Medical College, India*
[2]*Manipal College of Dental Sciences, India*

In the recent past, the rapid spread of Severe Acute Respiratory Syndrome (SARS)-Coronavirus (CoV)-2 infection led to a destructive outbreak globally. Safe and effective vaccines were the need of the hour to prevent the further propagation of the pandemic. Due to the expedited development of Coronavirus disease (COVID-19) vaccines and the accelerated rate of immunization, sufficient data on adverse events following COVID-19 vaccination was lacking. Here we discuss a case of Undifferentiated connective tissue disease (UCTD) potentially triggered by the recombinant adenovirus vector-based COVID-19 vaccine, Covishield. A 60-year-old Asian-Indian female presented with a fever of unknown origin (FUO) and constitutional symptoms after she received the first dose of the Covishield vaccine. Despite numerous investigations and extensive workup, the underlying cause for FUO remained elusive. With a high suspicion, screening for autoimmune disorders was performed, which tested positive for Anti-nuclear antibody (ANA). Further testing revealed Anti-U1 Ribonucleoprotein (RNP) and Anti-Ro/SSA positivity. The clinical presentation and the laboratory findings led to the diagnosis of UCTD. The patient responded well to the immunosuppressive therapy and refrained from receiving the second dose of the vaccine. Historically, autoimmune illnesses like systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA) have earlier been reported secondary to vaccination against other infectious diseases such as hepatitis B and tetanus. Similarly, evidence has reported that COVID-19 vaccines may potentially be associated with adverse events like vaccine-induced thrombotic thrombocytopenia, IgA nephropathy, SLE, Graves' disease, Autoimmune hepatitis, etc. Regardless of these rare adverse events, the benefit of vaccination in controlling the spread of coronavirus cannot be undermined. However, further research on immune mechanisms activated by the COVID vaccines must be encouraged. Such data may enable the policymakers to formulate guidelines regarding COVID-19 vaccination in different subsets of the population.

Biography

Since childhood, I have always been inquisitive about internal bodily mechanisms and after entering medical school, I realized Internal Medicine aligns perfectly with my true calling. I completed my medical education at Jawaharlal Nehru Medical College located in Belgaum with multiple academic achievements. Thereafter, I entered community practice as a General Physician in India while pursuing the path to Internal Medicine Residency in the United States. I believe that translational research plays a key role in continuously transforming the practice of medicine, and I would be honored to be able to make my contributions to this divine field.

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Cell-free DNA as a biomarker and its correlation in SLE: A systematic review and meta-analysis

Shayan Ali Irfan

Dow University of Health Sciences, Pakistan

Purpose: The purpose of this systematic review and meta-analysis is to evaluate the correlation of plasma cell-free DNA in SLE patients, and to determine the factors influencing the raised cfDNA level.

Materials and Methods: A systemic search was conducted from electronic databases. All statistical analysis was conducted in Review Manager 5.4.1. All studies under the eligibility criteria described as PICOS were selected. The data from studies was pooled using a random-effects model. The results were analyzed by calculating the odds ratio with respective 95% confidence intervals.

Result: Nine studies were selected for quantitative and qualitative analysis. The quantitative analysis showed statistically significant raised plasma cfDNA levels in SLE patients in comparison to healthy control (MD= 15.07 [10.04, 20.09]; p< 0.00001; I2= 98%). The qualitative analysis method was employed to evaluate the factors correlating with the raised cfDNA level in SLE patients. Six included studies showed correlation of cfDNA with the SLEDAI score. Demographic characteristics such as age, gender, and duration of disease were not found to be associated with raised cfDNA. The qualitative analysis suggested a prominent correlation of cfDNA with antibodies (Anti-dsDNA-antibody) and inflammatory markers (C3, C4, and ESR). The mtDNA shows a correlation with the SLE, however, the data regarding mtDNA was scanty.

Conclusion: Our study showed a statistically significant increase in plasma cfDNA concentration in SLE in comparison to healthy control. However, the quantitative analysis cannot establish a strong result regarding the factors influencing the rise in the cfDNA level. However, Anti-dsDNA-antibody and inflammatory markers were associated with raised cfDNA. We conclude the usage of cfDNA as a diagnostic and prognostic biomarker remains an emerging but not a definite biomarker in SLE patients, for which more extensive research is needed to further strengthen the stance presented.

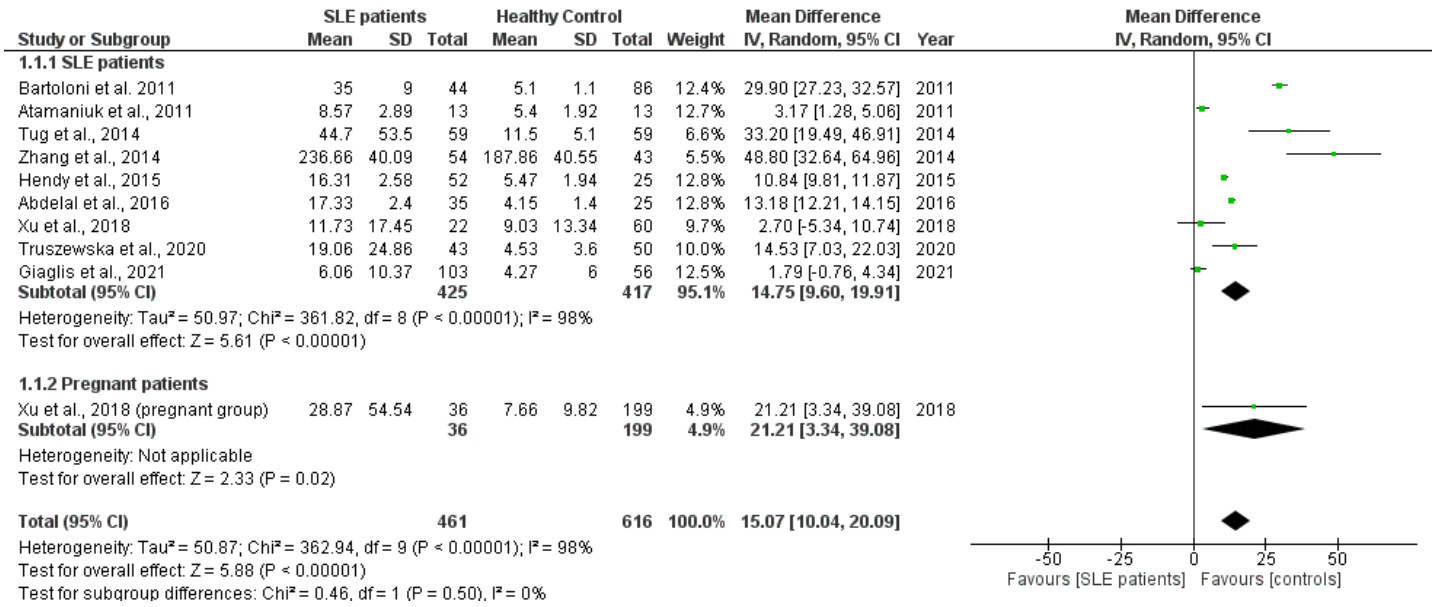

Figure 2. *Forest plot determining the difference in cfDNA in SLE patients in comparison to healthy control.*

Biography

Dr. Shayan Ali Irfan is a research enthusiast and an expert in statistical analysis who started his research journey 3 years back as a medical student. He has worked on several research articles with renown name in the field of internal medicine, neurology, general surgery, and immunology. He himself has several research papers as primary author and senior author. He currently has 6 published articles and 8 articles under review process, while working on 4 papers. He has participated in 3 international and 2 local research presentations. He mentors several medical students to start their research journey and is a part of several research organization for the improvement of medical research in Pakistan.

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The magnitude of undiagnosed hypertension and associated factors among HIV-positive patients attending antiretroviral therapy clinics of Butajira general hospital, Gurage Zone, Southern Ethiopia

Shegaw Tesfa[1], Bogale Chekole Temere[1], Agerie Aynalem Mewahegn[1], Tadele lankrew[3], Yihenew Sewale[4], Bitew Tefera Zewudie[1], Shegaw Geze Tenaw[2], Mamo Solomon[1], Yibeltal Mesfin[2], Haimanot Abebe[1] and **Zebene Mekonnen[1]**

[1]Department of Nursing, Wolkite University, Ethiopia
[2]Department of Midwifery, Wolkite University, Ethiopia
[3]Department of Nursing, Wolaita Sodo University, Ethiopia
[4]Department of Nursing, Debre Birhan University, Ethiopia

Introduction: Hypertension is a force exerted by circulating against the walls of the body's arteries whose systolic blood pressure (SBP) values are ≥ 130mmHg and diastolic blood pressure (DBP) values ≥ 80mmHg.

Objectives: The study aimed to assess the magnitude of undiagnosed hypertension, and its associated factors among adult HIV-positive patients receiving antiretroviral therapy at Butajira General Hospital, southern Ethiopia.

Methods: We applied an institutional-based cross-sectional study design at Butajira General Hospital from 1 May to 1 July 2021. We used a systematic random sampling technique to select the total number of participants. A structured interviewer administered questionnaire was applied to collect the data (socio demographic characteristics, clinical-related factors, and lifestyle-related factors from the study participants. Data were entered using Epi-data version 3.1 and analyzed by statistical package for social science version 25. We applied a multivariable logistic regression analysis model to identify variables significantly associated with hypertension.

Results: The study comprised 388 participants with 39 years (10.6 SD) as the mean age of the participants. Of the total participants, 235 (60.6%) were female. In this study the magnitude of undiagnosed hypertension among HIV-positive patients was 18.8% (95% CI: 14.7%–23.2%). Having comorbidity of diabetes mellitus (adjusted odds ratio=5.29, 95% CI: 2.154, 12.99), habit of alcohol drinking (adjusted odds ratio=2.909, 95% CI: 1.306, 6.481), duration of antiretroviral therapy ≥ 5years (adjusted odds ratio=3.087, 95% CI: 1.558, 6.115), and age≥40years (adjusted odds ratio=2.642, 95% CI: 1.450, 4.813) were factors significantly associated with undiagnosed hypertension.

Conclusions and recommendations: The magnitude of undiagnosed hypertension among HIV-positive patients attending the antiretroviral therapy clinic of Butajira General Hospital is high. The findings of this study implied that HIV-positive patients attending antiretroviral therapy clinics should be monitored routinely for hypertension; especially participants aged ≥ 40 years, highly active antiretroviral therapy duration ≥ 5 years, having diabetes mellitus comorbidity need more attention. Primary healthcare integration is also vital to enhance the health of HIV-positive patients on antiretroviral therapy.

Biography

My name is Shegaw Tesfa Mengist (BSc, MSc in AHN) working as an academician at Wolkite University, one of higher educational institution in Ethiopia as the role of fined new ideas and concepts through researches, capacity building in academicals area to the learners, searching the community problem and addressing through a community service.

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September 11-12, 2023

Distribution of chickpea (*Cicer arietinum* L.) Ascochyta blight (*Didymella rabiei*) and analyses of factors affecting disease epidemics in Central Ethiopia

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Ascochyta blight (caused by *Didymella rabiei*) is one of the most important diseases affecting chickpea production and productivity. The distribution, incidence and severity of the disease, the association of agronomic practices, and environmental factors on the intensity of the disease mainly remained undermined. Chickpea field surveys were conducted in two main chickpea growing regions of central Ethiopia during 2020 and 2021 main cropping seasons to determine the distribution and importance of Ascochyta blight and analyses its association with biophysical factors. A total of 366 chickpea fields were surveyed in five zones, and 76.6% of the fields were infected with Ascochyta blight. The results revealed that the overall mean prevalence and incidence of the disease ranged from 100 to 46.66%. Ascochyta blight in the infected fields had a mean severity index of 40.17%. Higher mean incidence of 39.2% was obtained at altitude of ≤2129 m.a.s.l than higher altitudes. Using logistic regression analysis, independent variables: zone, altitude, cropping season, seed source, cultivar type, variety, planting pattern, and plant density were shown to have significant effect on the severity index ($P<0.001$). High weed density, growth stage, planting time, crop rotation, Fusarium wilt, pod borer, aphid spp., and dry root rot also had significant association ($P < 0.05$) to Ascochyta blight epidemics. The highest severity (SI=60.3%) was obtained in Arsi Zone and the lowest in South West Shewa Zone (SI=32.1%). The results of this survey analyses indicated that planting chickpea at the mid of the main rainy season, proper weed management, planting improved varieties, and crop rotation should be practiced to reduce the negative impact of the disease until effective resistant chickpea varieties are developed. Furthermore, it is recommended that effective and feasible integrated management options need to be developed against the disease to boost the production and productivity of the crop.

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GLOBAL VIROLOGY CONGRESS

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Results of the West Nile virus early warning system in Tunisia 2011-2022

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The general objective of Tunisian early warning system is to detect the viral circulation at an early stage in order to implement effective measures for information, prevention and control. This system has been implemented since 2011 with the collaboration of national partners as IPT Virology laboratory, Agriculture and Environment Ministries and National Institute of Meteorology. There were WNV epidemic episodes during the years 1997, 2003, 2012 and 2018 with endemic circulation during the other years involving sporadic human cases. An integrated surveillance system ISS was implemented based on one health approach covering human, animal and entomological sectors. During the outbreaks observed in Tunisia between August and November 2018, the epidemic strain grouped within the sublineage 1a but clearly distinct from the 1997 epidemic strain PaH001. A total of six sporadic human cases were sequenced during the year 2019 and 2022. Phylogenetic analysis showed that these recent WNV strains are still limited to lineage 1a with different clusterization in favor of the multiple introduction of new strains. Recently, the ISS identify the virus in the vector in the 5 sites set up, and in a horse. This entomological investigation showed that the strain detected in the mosquito is phylogenetically close to a clinical strain detected in the same governorate during the same season.

Biography

Souha Bougatef is a Medical doctor Director health surveillance at the national observatory of new and emerging diseases, Tunisia. Responsible of the integrated surveillance system of West Nile virus in Tunisia. Responsible of the Event based surveillance.

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Antigenicity and immunogenicity analysis of the E. coli expressed FMDV structural proteins; VP1, VP0, VP3 of the South African Territories type 2 virus

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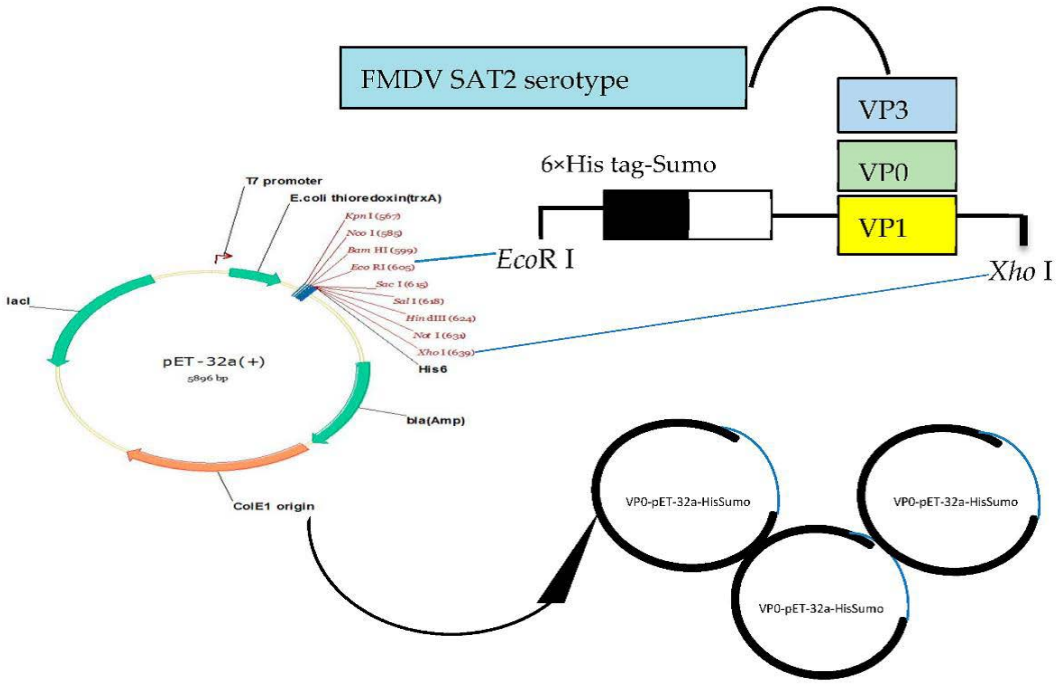
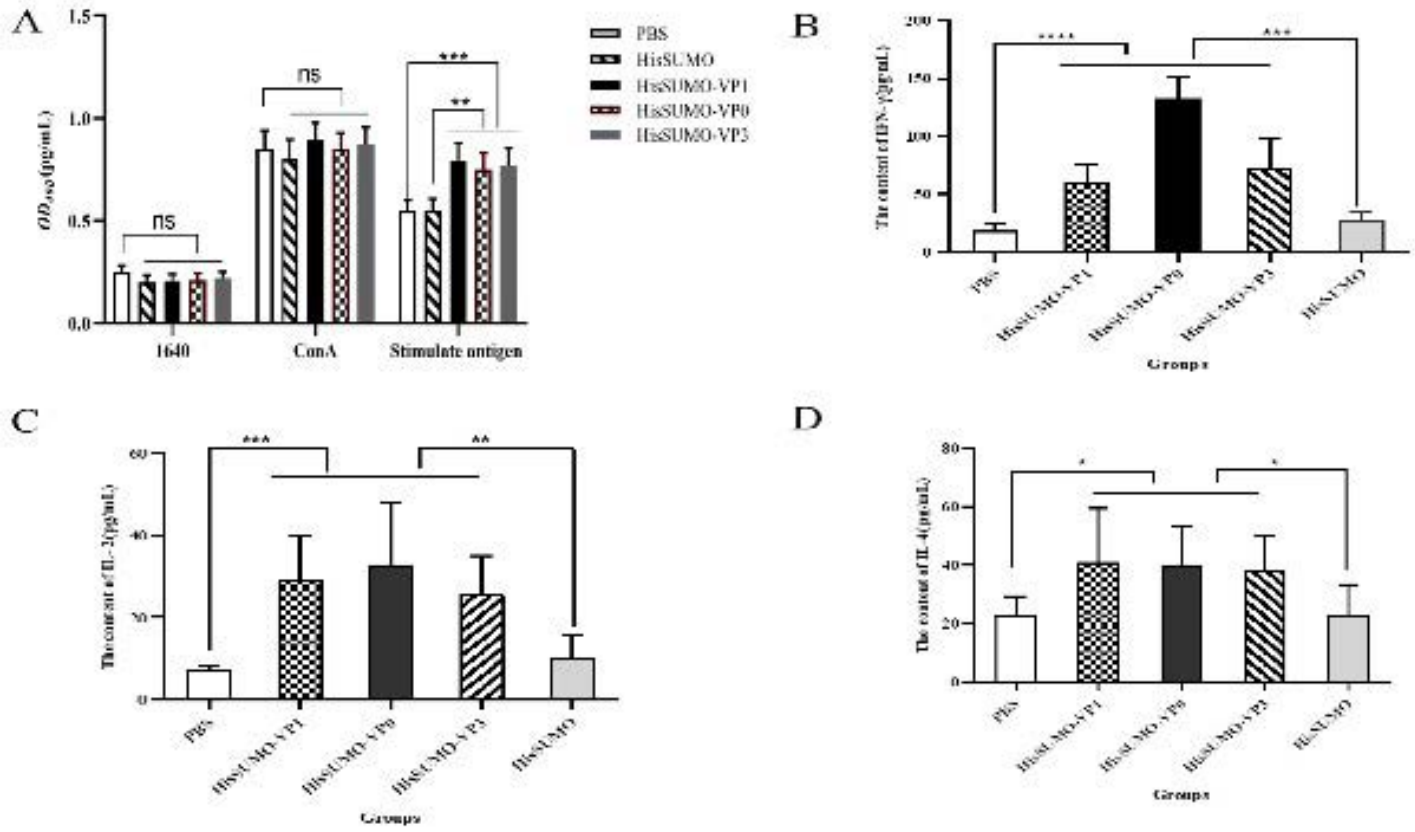
An alternative vaccine design approach and diagnostic kits are highly required against the anticipated pandemicity caused by the South African Territories type 2 (SAT2) Foot and Mouth Disease Virus (FMDV). However, the distinct antigenicity and immunogenicity of VP1, VP0, andVP3 of FMDV serotype SAT2 are poorly understood. Similarly, the particular roles of the three structural proteins in novel vaccine design and development remain unexplained. We therefore constructed VP1, VP0, and VP3 encoding gene (SAT2:JX014256 strain) separately fused with His-SUMO (histidine-small ubiquitin-related modifier) inserted into pET-32a cassette to express the three recombinant proteins and separately evaluated their antigenicity and immunogenicity in mice. The fusion protein was successfully expressed and purified by the Ni-NTA resin chromatography. The level of serum antibody, spleen lymphocyte proliferation, and cytokines against the three distinct recombinant proteins were analyzed. Results showed that the anti-FMDV humoral response was triggered by these proteins, and



the fusion proteins did enhance the splenocyte immune response in the separately immunized mice. We observed low variations among the three fusion proteins in terms of the antibody and cytokine production in mice. Hence, in this study, results demonstrated that the structural proteins of SAT2 FMDV could be used for the development of immunodiagnostic kits and subunit vaccine designs.



Biography

Dr. Ashenafi Kiros Wubshet received his doctor of veterinary degree at Haramaya University and his postgraduate studies in veterinary microbiology at Addis Ababa University in Ethiopia. Veterinarian and virologist Dr. Ashenafi Kiros Wubshet is enthusiastic and devoted to his work. He is a PhD student at the Chinese Academy of Agricultural Sciences (CAAS), Lanzhou Veterinary Research Institute (LVRI), in the city of Lanzhou in the province of Gansu. In the FMD's Foot-and-Mouth Diseases Diagnosis Research Group, he is studying the development of a novel chimeric vaccine to combat the SAT2 serotype of the FMDV disease.

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Evolutionary probing of Dengue sequences from Pakistan

Zaira Rehman and **Ammad Fahim**

The Indus Hospital and Health Networks, Pakistan

Pakistan has been experiencing repeated seasonal dengue outbreaks however their magnitude has been increasing since last 10 years with 2022 outbreak being the largest with 75450 confirmed cases. The current study investigate the source of transmission of dengue in the country during 2022 outbreak. The study also asses the suitability of current FDA approved vaccine (Dengvaxia) that target the PrM and E protein of dengue, with mutational repertoire identified in Pakistani strains, based on dengue viral sequences. The whole genome sequences of dengue reported during 2022 along with the global reported sequences of full length of DENV-1 and DENV-2 were subjected to multiple sequence alignment. Phylogenetic tree was constructed and rate of transmission was calculated using BEAST v1.10.4 and SPREAD3 v0.9.6. The resulting data showed that DENV-1 sequences from Pakistan have clustered with the sequences from Bangladesh and China and the single most recent common ancestor is India but the data of the rate of transmission is very low to support. The DENV-2 sequences from Pakistan cluster on two separate branches, the 2022 sequences cluster with the sequences from China and Singapore while the previous reported sequences from Pakistan cluster with the sequences from India and Saudi Arabia. The data obtained in the study showed the transmission of dengue in Pakistan not only from neighboring countries like Bangladesh, China, and India, but also from Singapore.

The sequence comparison with the Dengue vaccine showed 20 substitutions for DENV-1 sequences and 18 for DENV-2. There are eight unique mutations (D29N, I128V, H149Y, A153V, Q219H, V296I, N557S, and I629V) observed in the DENV-2 sequences from Pakistan compared to Dengvaxia. The divergence observed in the DENV-2 and DENV-1 sequences from Pakistan, needs further studies to elucidate how variations can impact clinical immunity. The current study provides the transmission pattern of DENV in Pakistan and also provide information regarding the differences in the current vaccine strains and Pakistani sequences.

Biography

Zaira Rehman is a Bioinformatics graduate with post grad in Virology & Immunology and PhD in Computational biology. During MPhil my major work was on Hepatitis and Influenza viruses. During PhD my primary work was on chemotherapy resistance biomarkers and lead identification for chemotherapy resistance inhibition. I have been one of the founding members of developing viral genomics lab at National Institute of Health (NIH), Pakistan in 2020 and had been the focal person for Bioinformatics analysis reporting on viral sequencing for SARS-CoV-2. Apart from SARS-CoV-2 I have been involved in sequencing analysis of other viral pathogens including CCHF, Norovirus, and Dengue virus. Currently, I am Senior Computational Biologist at the Indus Hospital and Health Networks. I am primarily dealing with establishment and deployment of pipelines for transcriptomic data analysis in cancer patients My expertise is in the areas of Genomic and transcriptomic sequencing data analysis, Vaccine & Drug designing, Molecular Dynamic Simulations and Biomarkers discovery.

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