



Veille scientifique

Maladies tropicales négligées

Semaine 38
18 au 24 septembre 2023

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Cysticercose

Primary cerebral cystic echinococcosis in a child from Roman countryside: Source attribution and scoping review of cases from the literature.

Casulli A, Pane S, Randi F, Scaramozzino P, Carvelli A, Marras CE, Carai A, Santoro A, Santolamazza F, Tamarozzi F, Putignani L.

05-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37669300/>

Background: Human cystic echinococcosis (CE) is a zoonotic parasitic infection caused by the larval stage of the species belonging to the *Echinococcus granulosus sensu lato* (s.l.) complex. Parasitic cysts causing human CE are mainly localized in the liver and in the lungs. In a smaller number of cases, larvae may establish in any organ or tissue, including the central nervous system (CNS). Cerebral CE (CCE) is rare but poses serious clinical challenges. **Methods:** This study presents a case of CCE in a child living in the countryside near Rome (Italy), along with a comparative molecular analysis of the isolated cyst specimens from the patient and sheep of local farms. We also systematically searched the literature to summarize the most relevant epidemiological and clinical aspects of this uncommon localization. **Findings:** The comparative molecular analysis confirmed that the infection was caused by *E. granulosus sensu stricto* (s.s.) (G3 genotype), and most likely acquired in the family farm. The literature search identified 2,238 cases of CCE. In 80.51% of cases, brain was the only localization and single CCE cysts were present in 84.07% of cases. Mean patients' age was 20 years and 70.46% were children. Cyst rupture was reported in 12.96% and recurrence of CCE after treatment in 9.61% of cases. Permanent disability was reported in 7.86% of cases, while death occurred in 6.21%. In case series reporting all CE localization, CCE represented 1.5% of all CE cases. In the few reports that identified at molecular level the CCE cyst, *E. granulosus* s.s. was found in 40% and *E. canadensis* in 60% of cases. **Conclusions:** We report a rare case of CCE and evidenced the probable local origin of infection. The proportions of CE cases with uncommon localizations and with high impact on patients' lives have been globally neglected and should be included in the computation of the global burden of CE.

Teaching NeuroImage: Antibody-Negative Giant Subarachnoid Neurocysticercosis With Isolated Motor Impairment.

Qian Z, Li Z, Zhang Z, Chen J, Chen X, Gao J.

19-09-2023

Neurology.

<https://pubmed.ncbi.nlm.nih.gov/37407256/>

Dengue, chikungunya et maladie à virus Zika

Reemergence of Cosmopolitan Genotype Dengue Virus Serotype 2, Southern Vietnam.

Tran VT, Inward RPD, Gutierrez B, Nguyen NM, Nguyen PT, Rajendiran I, Cao TT, Duong KTH, Kraemer MUG, Yacoub S.

Oct-2023

Emerg Infect Dis.

<https://pubmed.ncbi.nlm.nih.gov/37735803/>

Computer-aided Affinity Enhancement of a Cross-reactive Antibody against Dengue Virus Envelope Domain III.

Jonniya NA, Poddar S, Mahapatra S, Kar P.

21-09-2023

Cell Biochem Biophys.

<https://pubmed.ncbi.nlm.nih.gov/37735329/>

The dengue virus (DENV), composed of four distinct but serologically related Flaviviruses, causes the most important emerging viral disease, with nearly 400 million infections yearly. Currently, there are no approved therapies. Although DENV infection induces lifelong immunity against the same serotype, the antibodies raised contribute to severe disease in heterotypic infections. Therefore, understanding the mechanism of DENV neutralization by antibodies is crucial in the design of vaccines against all serotypes. This study reports a comparative structural and energetic analysis of the monoclonal antibody (mAb) 4E11 in complex with its target domain III of the envelope protein for all four DENV serotypes. We use extensive replica molecular dynamics simulations in conjunction with the binding free energy calculations. Further single point and double mutations were designed through computational site-directed mutagenesis and observed that the re-engineered antibody exhibits high affinity to binding and broadly neutralizing activity against serotypes. Our results showed improved binding affinity by the gain of enthalpy, which could be attributed to the stabilization of salt-bridge and hydrogen bond interactions at the antigen-antibody interface. The findings provide valuable results in understanding the structural dynamics and energetic contributions that will be helpful to the design of high-affinity antibodies against dengue infections.

Susceptibility to Zika virus in a Collaborative Cross mouse strain is induced by Irf3 deficiency in vitro but requires other variants in vivo.

Bourdon M, Manet C, Conquet L, Ramaugé Parra C, Kornobis E, Bonnefoy E, Montagutelli X.

21-09-2023

PLoS Pathog.

<https://pubmed.ncbi.nlm.nih.gov/37733807/>

Zika virus (ZIKV) is a Flavivirus responsible for recent epidemics in Pacific Islands and in the Americas. In

humans, the consequences of ZIKV infection range from asymptomatic infection to severe neurological disease such as Guillain-Barré syndrome or fetal neurodevelopmental defects, suggesting, among other factors, the influence of host genetic variants. We previously reported similar diverse outcomes of ZIKV infection in mice of the Collaborative Cross (CC), a collection of inbred strains with large genetic diversity. CC071/TauUnc (CC071) was the most susceptible CC strain with severe symptoms and lethality. Notably, CC071 has been recently reported to be also susceptible to other flaviviruses including dengue virus, Powassan virus, West Nile virus, and to Rift Valley fever virus. To identify the genetic origin of this broad susceptibility, we investigated ZIKV replication in mouse embryonic fibroblasts (MEFs) from CC071 and two resistant strains. CC071 showed uncontrolled ZIKV replication associated with delayed induction of type-I interferons (IFN-I). Genetic analysis identified a mutation in the *Irf3* gene specific to the CC071 strain which prevents the protein phosphorylation required to activate interferon beta transcription. We demonstrated that this mutation induces the same defective IFN-I response and uncontrolled viral replication in MEFs as an *Irf3* knock-out allele. By contrast, we also showed that *Irf3* deficiency did not induce the high plasma viral load and clinical severity observed in CC071 mice and that susceptibility alleles at other genes, not associated with the IFN-I response, are required. Our results provide new insight into the in vitro and in vivo roles of *Irf3*, and into the genetic complexity of host responses to flaviviruses.

Hemophagocytic Lymphohistiocytosis After Dengue Fever and Its Ocular Features.

Patil A, Mahendradas P, Shetty R.

01-09-2023

JAMA Ophthalmol.

<https://pubmed.ncbi.nlm.nih.gov/37733046/>

PKR-mediated stress response enhances dengue and Zika virus replication.

Ricciardi-Jorge T, da Rocha EL, Gonzalez-Kozlova E, Rodrigues-Luiz GF, Ferguson BJ, Sweeney T, Irigoyen N, Mansur DS.

21-09-2023

mBio.

<https://pubmed.ncbi.nlm.nih.gov/37732809/>

Zika virus infection leads to hormone deficiencies of the hypothalamic-pituitary-gonadal axis and diminished fertility in mice.

Liu LB, Yang W, Chang JT, Fan DY, Wu YH, Wang PG, An J.

21-09-2023

J Virol.

<https://pubmed.ncbi.nlm.nih.gov/37732785/>

Zika virus (ZIKV) infection in pregnant women during the first trimester can cause congenital malformations including microcephaly, which has focused global

attention on this emerging pathogen. By contrast, ZIKV infection in pregnant women during the third trimester can cause neurodevelopmental delays and cryptorchidism in newborns without microcephaly. Here, we evaluated the long-term fertility consequences of ZIKV infection in male suckling mice, which is equivalent to congenital ZIKV infection in children, from multiple perspectives including the hypothalamic-pituitary-gonadal axis, testis, sperm, and social behaviors. We observed the persistence of ZIKV in the hypothalamus of mice, which caused long-term hormone deficiencies of the hypothalamic-pituitary-gonadal axis. Hormone deficiencies led to limited delays in testicular development, a decrease in sperm quality and quantity, and abnormal social abilities. These damages could progress to diminished fertility in male mice, as judged by lower pregnancy rate, prolonged time to delivery, and decreased offspring quality. Currently, the extent to which these observations in mice translate to humans remains unclear, but longitudinal studies of hormone levels and reproductive health in ZIKV-exposed children seem warranted. **IMPORTANCE** Zika virus (ZIKV) infection in pregnant women during the third trimester can cause neurodevelopmental delays and cryptorchidism in children without microcephaly. However, the consequences of congenital ZIKV infection on fertility in these children remain unclear. Here, using an immunocompetent mouse model, we reveal that congenital ZIKV infection can cause hormonal disorders of the hypothalamic-pituitary-gonadal axis, leading to reduced fertility and decreased sexual preference. Our study has for the first time linked the hypothalamus to the reproductive system and social behaviors after ZIKV infection. Although the extent to which these observations in mice translate to humans remains unclear, these findings did suggest that the reproductive health and hormone levels of ZIKV-exposed children should receive more attention to improve their living quality.

Genomics-based timely detection of Dengue Virus type I genotypes I and V in Uruguay.

Morel N, Giovanetti M, Fonseca V, Burgueño A, Lima M, Castro E, R Guimarães N, Iani FCM, Bormida V, Cortinas MN, Ramas V, Coppola L, Bento AI, Rosewell A, Franco L, Rico JM, Lourenço J, Alcantara LCJ, Chiparelli H.

06-09-2023

medRxiv.

<https://pubmed.ncbi.nlm.nih.gov/37732223/>

Dynamic Antibody Response and Hybrid Immunity Following Multiple COVID-19 Vaccine Doses and Infection: A Case Study.

Kanokudom S, Suntronwong N, Duangchinda T, Wanlapakorn N, Poovorawan Y.

19-09-2023

Cureus.

<https://pubmed.ncbi.nlm.nih.gov/37731681/>

Modelling the transmission of dengue, zika and chikungunya: a scoping review protocol.

Romero-Leiton JP, Acharya KR, Parmley JE, Arino J, Nasri B.

19-09-2023

BMJ Open.

<https://pubmed.ncbi.nlm.nih.gov/37730394/>

Introduction: *Aedes* mosquitoes are the primary vectors for the spread of viruses like dengue (DENV), Zika (ZIKV) and chikungunya (CHIKV), all of which affect humans. Those diseases contribute to global public health issues because of their great dispersion in rural and urban areas. Mathematical and statistical models have become helpful in understanding these diseases' epidemiological dynamics. However, modelling the complexity of a real phenomenon, such as a viral disease, should consider several factors. This scoping review aims to document, identify and classify the most important factors as well as the modelling strategies for the spread of DENV, ZIKV and CHIKV. **Methods and analysis:** We will conduct searches in electronic bibliographic databases such as PubMed, MathSciNet and the Web of Science for full-text peer-reviewed articles written in English, French and Spanish. These articles should use mathematical and statistical modelling frameworks to study dengue, Zika and chikungunya, and their cocirculation/coinfection with other diseases, with a publication date between 1 January 2011 and 31 July 2023. Eligible studies should employ deterministic, stochastic or statistical modelling approaches, consider control measures and incorporate parameters' estimation or considering calibration/validation approaches. We will exclude articles focusing on clinical/laboratory experiments or theoretical articles that do not include any case study. Two reviewers specialised in zoonotic diseases and mathematical/statistical modelling will independently screen and retain relevant studies. Data extraction will be performed using a structured form, and the findings of the study will be summarised through classification and descriptive analysis. Three scoping reviews will be published, each focusing on one disease and its cocirculation/co-infection with other diseases. **Ethics and dissemination:** This protocol is exempt from ethics approval because it is carried out on published manuscripts and without the participation of humans and/or animals. The results will be disseminated through peer-reviewed publications and presentations in conferences.

First report of *Aedes albopictus* (Diptera: Culicidae) in the North of Colombia.

Atencia-Pineda MC, Calderón-Rangel A, Hoyos-López R, García-Leal J, Bolaños R, Pareja-Loaiza P, Maestre-Serrano R.

15-09-2023

Rev Inst Med Trop Sao Paulo.

<https://pubmed.ncbi.nlm.nih.gov/37729270/>

Aedes albopictus is considered a potential vector of arboviruses in Colombia. Females and males naturally infected with dengue, Zika and chikungunya viruses have already been found in this country. We document the first record of *Ae. albopictus* in the Cordoba department, in North of Colombia. The finding was carried out during *Ae.*

aegypti collection activities in the Ayapel, Montelibano, Planeta Rica, Pueblo Nuevo and Puerto Libertador municipalities. The entomological material was collected in water containers such as cement water tanks, tanks, bottles, tires, abandoned toilets, and plastic lids with natural water located in the intradomicile, peridomicile, and extra-domicile spaces of the homes. We collected 658 *Ae. albopictus* samples in the larva and pupa stages, and once these reached adulthood, we determined that 389 were female and 269 were male. This is the first record of the presence of *Ae. albopictus* in the Cordoba department.

Early warning and response system for dengue outbreaks: Moving from research to operational implementation in Mexico.

Sanchez Tejeda G, Benitez Valladares D, Correa Morales F, Toledo Cisneros J, Espinoza Tamarindo BE, Hussain-Alkhateeb L, Merle CS, Kroeger A.

20-09-2023

PLOS Glob Public Health.

<https://pubmed.ncbi.nlm.nih.gov/37729119/>

Dengue disease epidemics have increased in time and space due to climatic and non-climatic factors such as urbanization. In the absence of an effective vaccine, preventing dengue outbreak relies on vector control activities. Employing computerized tools to predict outbreaks and respond in advance has great potential for improving dengue disease control. Evidence of integrating or implementing such applications into control programs and their impact are scarce, and endemic countries demand for experience sharing and know-how transfer. Mexico has extensive experience of pre-validated EWARS (Early Warning And Response System), a tool that was developed in 2012 as part of a collaboration with the Special Program for Research and Training in Tropical Diseases Unit (TDR) at the World Health Organization and used at national level. The advancement of EWARS since 2014 and its stepwise integration into the national surveillance system has increased the appreciation of the need for integrated surveillance (including disease, vector and climate surveillance), and for linking inter-institutional and trans-sectoral information for holistic epidemiological intelligence. The integration of the EWARS software into the national surveillance platform in Mexico was a remarkable milestone and a successful experience. This manuscript describes the implementation process of EWARS in Mexico, which started in 2012 and further demonstrates benefits, threats, and opportunities of integrating EWARS into existing national surveillance programs.

Asymptomatic arbovirus and campylobacter infections in German travelers to Asia.

Dammermann W, Haller IE, Singethan K, Vinnemeier CD, Hentschel F.

20-09-2023

Arch Virol.

<https://pubmed.ncbi.nlm.nih.gov/37728769/>

Unveiling the antiviral potential of Plant compounds from the Meliaceae family against the Zika virus through QSAR modeling and MD simulation analysis.

Shukla D, Alanazi AM, Panda SP, Dwivedi VD, Kamal MA.
20-09-2023

J Biomol Struct Dyn.

<https://pubmed.ncbi.nlm.nih.gov/37728536/>

Zika virus (ZIKV) is a flavivirus transmitted by mosquitoes, causing neurological disorders and congenital malformations. RNA-dependent RNA polymerase (RdRp) is one of its essential enzymes and a promising drug target for antiviral therapy due to its involvement in the growth and multiplication of the virus. In this study, we conducted a QSAR-based chemical library screening from the Meliaceae family to identify potential RdRp inhibitors. The QSAR model was built using the known inhibitors of RdRp NS5 of ZIKV and their biological activity (EC50), along with the structural and chemical characteristics of the compounds. The top two hit compounds were selected from QSAR screening for further analysis using molecular docking to evaluate their binding energies and intermolecular interactions with RdRp, including the critical residue Trp⁴⁸⁵. Furthermore, molecular dynamics (MD) simulations were performed to evaluate their binding stability and flexibility upon binding to RdRp. The MD results showed that the selected compounds formed stable complexes with RdRp, and their binding interactions were similar to those observed for the native ligand. The binding energies of the top two hits (-8.6 and -7.7 kcal/mole) were comparable to those of previously reported ZIKV RdRp inhibitors (-8.9 kcal/mole). The compound IMPHY009135 showed the strongest binding affinity with RdRp, forming multiple hydrogen bonds and hydrophobic interactions with key residues. However, compound IMPHY009276 showed the most stable and consistent RMSD, which was similar to the native ligand. Our findings suggest that IMPHY009135 and IMPHY009276 are potential lead compounds for developing novel antiviral agents against ZIKV. Communicated by Ramaswamy H. Sarma.

Public Fear and Risk Perception During Dengue Fever Outbreak in Taiwan.

Shih FY, Lyu SY, Yang CC, Chang YT, Lin CF, Morisky DE.
20-09-2023

Asia Pac J Public Health.

<https://pubmed.ncbi.nlm.nih.gov/37727955/>

A measles virus-based vaccine induces robust chikungunya virus-specific CD4⁺ T-cell responses in a phase II clinical trial.

Schmitz KS, Comvalius AD, Nieuwkoop NJ, Geers D, Weiskopf D, Ramsauer K, Sette A, Tschismarov R, de Vries RD, de Swart RL.
17-09-2023

Vaccine.

<https://pubmed.ncbi.nlm.nih.gov/37726181/>

Chikungunya virus (CHIKV) is an alphavirus transmitted by mosquitoes that causes a debilitating disease characterized by fever and long-lasting polyarthralgia. To date, no vaccine has been licensed, but multiple vaccine candidates are under evaluation in clinical trials. One of these vaccines is based on a measles virus vector encoding for the CHIKV structural genes C, E3, E2, 6K, and E1 (MV-CHIK), which proved safe in phase I and II clinical trials and elicited CHIKV-specific antibody responses in adult measles seropositive vaccine recipients. Here, we predicted T-cell epitopes in the CHIKV structural genes and investigated whether MV-CHIK vaccination induced CHIKV-specific CD4⁺ and/or CD8⁺ T-cell responses. Immune-dominant regions containing multiple epitopes in silico predicted to bind to HLA class II molecules were found for four of the five structural proteins, while no such regions were predicted for HLA class I. Experimentally, CHIKV-specific CD4⁺ T-cells were detected in six out of twelve participants after a single MV-CHIK vaccination and more robust responses were found 4 weeks after two vaccinations (ten out of twelve participants). T-cells were mainly directed against the three large structural proteins C, E2 and E1. Next, we sorted and expanded CHIKV-specific T cell clones (TCC) and identified human CHIKV T-cell epitopes by deconvolution. Interestingly, eight out of nine CD4⁺ TCC recognized an epitope in accordance with the in silico prediction. CHIKV-specific CD8⁺ T-cells induced by MV-CHIK vaccination were inconsistently detected. Our data show that the MV-CHIK vector vaccine induced a functional transgene-specific CD4⁺ T cell response which, together with the evidence of neutralizing antibodies as correlate of protection for CHIKV, makes MV-CHIK a promising vaccine candidate in the prevention of chikungunya.

Interactions of urbanisation, climate variability, and infectious disease dynamics: insights from the Coimbatore district of Tamil Nadu.

Suresh S, Meraj G, Kumar P, Singh D, Khan ID, Gupta A, Yadav TK, Kouser A, Avtar R.

19-09-2023

Environ Monit Assess.

<https://pubmed.ncbi.nlm.nih.gov/37725204/>

Climate change and shifts in land use/land cover (LULC) are critical factors affecting the environmental, societal, and health landscapes, notably influencing the spread of infectious diseases. This study delves into the intricate relationships between climate change, LULC alterations, and the prevalence of vector-borne and waterborne diseases in Coimbatore district, Tamil Nadu, India, between 1985 and 2015. The research utilised Landsat-4, Landsat-5, and Landsat-8 data to generate LULC maps, applying the maximum likelihood algorithm to highlight significant transitions over the years. This study revealed that built-up areas have increased by 67%, primarily at the expense of agricultural land, which was reduced by 51%. Temperature and rainfall data were obtained from APHRODITE Water Resources, and with a statistical analysis of the time series data revealed an annual average temperature increase of 1.8 °C and a minor but statistically significant rainfall increase during the study period.

Disease data was obtained from multiple national health programmes, revealing an increasing trend in dengue and diarrhoeal diseases over the study period. In particular, dengue cases surged, correlating strongly with the increase in built-up areas and temperature. This research is instrumental for policy decisions in public health, urban planning, and climate change mitigation. Amidst limited research on the interconnections among infectious diseases, climate change, and LULC changes in India, our study serves as a significant precursor for future management strategies in Coimbatore and analogous regions.

Evolution of a functionally intact but antigenically distinct DENV fusion loop.

Meganck RM, Zhu D, Dong S, Snoderly-Foster LJ, Dalben YR, Thiono D, White LJ, DeSilva AM, Baric RS, Tse LV.

19-09-2023

Elife.

<https://pubmed.ncbi.nlm.nih.gov/37725085/>

A hallmark of dengue virus (DENV) pathogenesis is the potential for antibody-dependent enhancement, which is associated with deadly DENV secondary infection, complicates the identification of correlates of protection, and negatively impacts the safety and efficacy of DENV vaccines. Antibody-dependent enhancement is linked to antibodies targeting the fusion loop (FL) motif of the envelope protein, which is completely conserved in mosquito-borne flaviviruses and required for viral entry and fusion. In the current study, we utilized saturation mutagenesis and directed evolution to engineer a functional variant with a mutated FL (D2-FL), which is not neutralized by FL-targeting monoclonal antibodies. The FL mutations were combined with our previously evolved prM cleavage site to create a mature version of D2-FL (D2-FLM), which evades both prM- and FL-Abs but retains sensitivity to other type-specific and quaternary cross-reactive (CR) Abs. CR serum from heterotypic (DENV4)-infected non-human primates (NHP) showed lower neutralization titers against D2-FL and D2-FLM than isogenic wildtype DENV2 while similar neutralization titers were observed in serum from homotypic (DENV2)-infected NHP. We propose D2-FL and D2-FLM as valuable tools to delineate CR Ab subtypes in serum as well as an exciting platform for safer live-attenuated DENV vaccines suitable for naïve individuals and children.

Dengue Infection Triggering Concurrent Thrombotic Thrombocytopenic Purpura in a Case of Chronic Idiopathic Thrombocytopenic Purpura.

Rana A, Ahlawat P, Upadhyay P, Gupta A, Bansal A.

18-08-2023

Cureus.

<https://pubmed.ncbi.nlm.nih.gov/37724240/>

We present a case report detailing the medical history of a 53-year-old female who had a well-established 10-year history of idiopathic thrombocytopenic purpura (ITP). The patient presented with fever and gum bleeding, prompting a series of laboratory investigations. These examinations revealed concurrent thrombocytopenia and

hemolytic anemia, alongside a positive test result for serum dengue IgM antibodies. Initial treatment for the patient involved intravenous administration of glucocorticoids and intravenous immunoglobulin. Regrettably, this therapeutic intervention did not yield a favorable response. Subsequent clinical developments, including the onset of generalized tonic-clonic seizures, raised suspicions of thrombotic thrombocytopenic purpura (TTP). A notable diagnostic indicator was the elevated PLASMIC score (platelet count; combined hemolysis variable; absence of active cancer; absence of stem-cell or solid-organ transplant; mean corpuscular volume; international normalized ratio; creatinine), reinforcing the consideration of TTP. To confirm the diagnosis, ADAMTS13 (a disintegrin and metalloproteinase with thrombospondin motifs 13) enzyme levels were assessed and found to be low. Consequently, the patient was diagnosed with TTP. Plasmapheresis was administered, resulting in a positive clinical response after two cycles. Notably, the patient experienced a resolution of thrombocytopenia and hemolytic anemia. Following successful treatment, the patient was discharged with a prescription for immunosuppressants. This case underscores the critical importance of including TTP as a potential differential diagnosis when encountering patients with chronic ITP. TTP is characterized by its acute and life-threatening nature, often deviating from the typical clinical presentation. The application of the PLASMIC score serves as a valuable tool in guiding decision-making processes when TTP is suspected.

Development in the Inhibition of Dengue Proteases as Drug Targets.

Akram M, Hameed S, Hassan A, Khan K.

18-09-2023

Curr Med Chem.

<https://pubmed.ncbi.nlm.nih.gov/37723635/>

Quantitative proteomics analysis of permethrin and temephos-resistant *Ae. aegypti* revealed diverse differentially expressed proteins associated with insecticide resistance from Penang Island, Malaysia.

Shettima A, Ishak IH, Lau B, Abu Hasan H, Miswan N, Othman N.

18-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37721966/>

Synthetic insecticides are the primary vector control method used globally. However, the widespread use of insecticides is a major cause of insecticide-resistance in mosquitoes. Hence, this study aimed at elucidating permethrin and temephos-resistant protein expression profiles in *Ae. aegypti* using quantitative proteomics. In this study, we evaluated the susceptibility of *Ae. aegypti* from Penang Island dengue hotspot and non-hotspot against 0.75% permethrin and 31.25 mg/l temephos using WHO bioassay method. Protein extracts from the mosquitoes were then analysed using LC-ESI-MS/MS for protein identification and quantification via label-free

quantitative proteomics (LFQ). Next, Perseus 1.6.14.0 statistical software was used to perform differential protein expression analysis using ANOVA and Student's t-test. The t-test selected proteins with ≥ 2.0 -fold change (FC) and ≥ 2 unique peptides for gene expression validation via qPCR. Finally, STRING software was used for functional ontology enrichment and protein-protein interactions (PPI). The WHO bioassay showed resistance with 28% and 53% mortalities in adult mosquitoes exposed to permethrin from the hotspot and non-hotspot areas. Meanwhile, the susceptibility of *Ae. aegypti* larvae revealed high resistance to temephos in hotspot and non-hotspot regions with 80% and 91% mortalities. The LFQ analyses revealed 501 and 557 (q-value < 0.05) differentially expressed proteins in adults and larvae *Ae. aegypti*. The t-test showed 114 upregulated and 74 downregulated proteins in adult resistant versus laboratory strains exposed to permethrin. Meanwhile, 13 upregulated and 105 downregulated proteins were observed in larvae resistant versus laboratory strains exposed to temephos. The t-test revealed the upregulation of sodium/potassium-dependent ATPase $\beta 2$ in adult permethrin resistant strain, H15 domain-containing protein, 60S ribosomal protein, and PB protein in larvae temephos resistant strain. The downregulation of troponin I, enolase phosphatase E1, glucosidase $\beta 2$ was observed in adult permethrin resistant strain and tubulin β chain in larvae temephos resistant strain. Furthermore, the gene expression by qPCR revealed similar gene expression patterns in the above eight differentially expressed proteins. The PPI of differentially expressed proteins showed a p-value at $< 1.0 \times 10^{-16}$ in permethrin and temephos resistant *Ae. aegypti*. Significantly enriched pathways in differentially expressed proteins revealed metabolic pathways, oxidative phosphorylation, carbon metabolism, biosynthesis of amino acids, glycolysis, and citrate cycle. In conclusion, this study has shown differentially expressed proteins and highlighted upregulated and downregulated proteins associated with insecticide resistance in *Ae. aegypti*. The validated differentially expressed proteins merit further investigation as a potential protein marker to monitor and predict insecticide resistance in field *Ae. aegypti*. The LC-MS/MS data were submitted into the MASSIVE database with identifier no: MSV000089259.

Establishment of a non-lethal model of antibody-dependent enhancement of infection in A129 mice based on a non-mouse-adapted dengue virus strain.

Wang H, Long MW, Zhang L, Pan Y, Chen JY, Feng K, Sun QM.

18-09-2023

Zool Res.

<https://pubmed.ncbi.nlm.nih.gov/37721102/>

Finding Lead Compounds for Dengue Antivirals from a Collection of Old Drugs through In Silico Target Prediction and Subsequent In Vitro Validation.

Abdullah ZL, Chee HY, Yusof R, Mohd Fauzi F.

28-08-2023

ACS Omega.

<https://pubmed.ncbi.nlm.nih.gov/37720780/>

Exploring the analgesic effects of pregabalin for post-chikungunya arthralgia: a comparative double-blind study.

Rodrigues RS, Sakata RK, Silva WVD, Raimundo CR, Cerqueira CF, Leal PDC.

15-09-2023

Braz J Anesthesiol.

<https://pubmed.ncbi.nlm.nih.gov/37717925/>

Epidemiological and clinical analysis of polish short-term and long-term travelers returning from tropical countries.

Bykowska-Tumasz M, Wysocki O, Sikorska K.

15-09-2023

Travel Med Infect Dis.

<https://pubmed.ncbi.nlm.nih.gov/37717797/>

Background: There is a lack of information about health problems after returning from tropical countries among travelers from Poland. The aim was to create characteristics of diseases imported to Poland from tropical regions and to determine the changes in the travel trends. **Method:** This retrospective study is based on medical records of 2391 Polish patients > 18 years old, hospitalized between 2006 and 2016 after returning from tropical areas. The analysis covered purpose, duration and travel destination, and health problems related to the travel. 1098 patients (short travel, < 1 month, $n = 345$ vs long travel, > 6 months, $n = 753$) were selected for further analysis. **Results:** The most frequently visited region was Sub-Saharan Africa. Tourists dominated among short-term and missionaries among long-term travelers. The most popular health problems in both groups were digestive system disease and febrile diseases. Diarrhoea of undetermined aetiology, dengue fever, malaria, fever of unknown aetiology and infectious mononucleosis were more likely to occur among short-term travelers whereas blastocystosis, giardiasis, schistosomiasis among long-term travelers. In the group of long-term travelers 363/753 (47,8%) were diagnosed with an infectious or parasitic disease in relation to a trip to a country with a hot climate. **Conclusions:** Tropical diseases occur among Polish travelers so they should be taken into account in the context of prophylaxis when preparing for travel and in the diagnosis of diseases that occur after returning from a tropical zone. This first analysis of disease incidence among Polish travelers indicates a strong need for more research in this area.

Development of a Sensitive Microplate Assay for Characterizing RNA Methyltransferase Activity: Implications for Epitranscriptomics and Drug Development.

Mensah I, Norvil AB, He M, Lendy E, Hjortland N, Tan H, Pomerantz RT, Mesecar A, Gowher H.

14-09-2023

J Biol Chem.

<https://pubmed.ncbi.nlm.nih.gov/37716702/>

RNA methylation is a ubiquitous post-transcriptional modification found in diverse RNA classes and is a critical regulator of gene expression. In this study, we used Zika virus RNA methyltransferase (MTase) to develop a highly sensitive microplate assay that uses a biotinylated RNA substrate and radiolabeled AdoMet coenzyme. The assay is fast, highly reproducible, exhibits linear progress-curve kinetics under multiple turnover conditions, has high sensitivity in competitive inhibition assays, and significantly lower background levels compared to the currently used method. Using our newly developed microplate assay, we observed no significant difference in the catalytic constants of the full-length NS5 enzyme and the truncated MTase domain. These data suggest that, unlike the Zika virus RNA-dependent RNA polymerase (RdRP) activity, the MTase activity is unaffected by RdRP-MTase inter-domain interaction. Given its quantitative nature and accuracy, this method can be used to characterize various RNA MTases, and, therefore, significantly contribute to the field of epitranscriptomics and drug development against infectious diseases.

Making sense of flavivirus non-structural protein 1 in innate immune evasion and inducing tissue-specific damage.

Zeng Q, Liu J, Hao C, Zhang B, Zhang H.

16-09-2023

Virus Res.

<https://pubmed.ncbi.nlm.nih.gov/37716670/>

Human muscle cells sensitivity to chikungunya virus infection relies on their glycolysis activity and differentiation stage.

Jaquet M, Bengue M, Lambert K, Carnac G, Missé D, Bisbal C.

14-09-2023

Biochimie.

<https://pubmed.ncbi.nlm.nih.gov/37716499/>

Changes to our environment have led to the emergence of human pathogens such as chikungunya virus. Chikungunya virus infection is today a major public health concern. It is a debilitating chronic disease impeding patients' mobility, affecting millions of people. Disease development relies on skeletal muscle infection. The importance of skeletal muscle in chikungunya virus infection led to the hypothesis that it could serve as a viral reservoir and could participate to virus persistence. Here we questioned the interconnection between skeletal muscle cells metabolism, their differentiation stage and the infectivity of the chikungunya virus. We infected human skeletal muscle stem cells at different stages of differentiation with chikungunya virus to study the impact of their metabolism on virus production and inversely the impact of virus on cell metabolism. We observed that chikungunya virus infectivity is cell differentiation and metabolism-dependent. Chikungunya virus interferes with the cellular metabolism in quiescent undifferentiated and proliferative muscle cells. Moreover, activation of

chikungunya infected quiescent muscle stem cells, induces their proliferation, increases glycolysis and amplifies virus production. Therefore, our results showed that Chikungunya virus infectivity and the antiviral response of skeletal muscle cells relies on their energetic metabolism and their differentiation stage. Then, muscle stem cells could serve as viral reservoir producing virus after their activation.

Amazonian medicinal plants efficiently inactivate Herpes and Chikungunya viruses.

Pavi CP, Prá ID, Cadamuro RD, Kanzaki I, Lacerda JWF, Sandjo LP, Bezerra RM, Segovia JFO, Fongaro G, Silva IT.
13-09-2023

Biomed Pharmacother.

<https://pubmed.ncbi.nlm.nih.gov/37713986/>

The Amazonian species investigated in this research are commonly utilized for their anti-inflammatory properties and their potential against various diseases. However, there is a lack of scientifically supported information validating their biological activities. In this study, a total of seventeen ethanolic or aqueous extracts derived from eight Amazonian medicinal plants were evaluated for their activity against Herpes Simplex type 1 (HSV-1) and Chikungunya viruses (CHIKV). Cytotoxicity was assessed using the sulforhodamine B method, and the antiviral potential was determined through a plaque number reduction assay. Virucidal tests were conducted according to EN 14476 standards for the most potent extracts. Additionally, the chemical composition of the most active extracts was investigated. Notably, the LMLE10, LMBA11, MEBE13, and VABE17 extracts exhibited significant activity against CHIKV and the non-acyclovir-resistant strain of HSV-1 (KOS) (SI > 9). The MEBE13 extract demonstrated unique inhibition against the acyclovir-resistant strain of HSV-1 (29-R). Virucidal assays indicated a higher level of virucidal activity compared to their antiviral activity. Moreover, the virucidal capacity of the most active extracts was sustained when tested in the presence of protein solutions against HSV-1 (KOS). In the application of EN 14476 against HSV-1 (KOS), the LMBA11 extract achieved a 99.9% inhibition rate, while the VABE17 extract reached a 90% inhibition rate. This study contributes to the understanding of medicinal species native to the Brazilian Amazon, revealing their potential in combating viral infections that have plagued humanity for centuries (HSV-1) or currently lack specific therapeutic interventions (CHIKV).

Mutational analyses, pharmacophore-based inhibitor design and in silico validation for Zika virus NS3-helicase.

Durgam L, Pagag J, Indra Neela Y, Guruprasad L.
15-09-2023

J Biomol Struct Dyn.

<https://pubmed.ncbi.nlm.nih.gov/37712848/>

Zika virus is responsible for causing Zika infections and was declared as a public health emergency of international concern in February 2016. The Zika virus NS3-helicase is a viable drug target for the design of inhibitors due to its

essential role in the replication of viral genome. The viral RNA is unwound by the NS3-helicase in order to enable the reproduction of viral genome by the NS5 protein. Zika virus infections in humans are being reported for the last 15 years. We have therefore carried out amino acid mutational analyses of NS3-helicase. NS3-helicase has two crucial binding sites: the ATP and RNA binding sites. The cofactor-ATP based pharmacophore was generated for virtual screening of ZINC database using Pharmit server, that is followed by molecular docking and molecular dynamics simulations of potential hits as probable Zika virus NS3-helicase inhibitors at the cofactor binding site. The drug-like properties of the molecules were analysed and, DFT calculations were performed on the five best molecules to reveal their stability in solvent phase compared to gas phase, the HOMO and LUMO and electrostatic potential maps to analyze the electronic and geometric characteristics. These are significant findings towards the discovery of new inhibitors of Zika virus NS3-helicase, a promising drug target to treat the Zika virus infection. Communicated by Ramaswamy H. Sarma.

A Unique Case of Dark Brown Plasma: Why Colour Variation should be Reported.

Afzal N.

Jan-2023

J Coll Physicians Surg Pak.

<https://pubmed.ncbi.nlm.nih.gov/37710942/>

Qdenga® - Schutz vor Dengue-Fieber.

Wedekind S.

Sept-2023

MMW Fortschr Med.

<https://pubmed.ncbi.nlm.nih.gov/37710130/>

Dynamics analysis of a nonlocal diffusion dengue model.

Chang K, Zhang Z, Liang G.

14-09-2023

Sci Rep.

<https://pubmed.ncbi.nlm.nih.gov/37709860/>

Due to the unrestricted movement of humans over a wide area, it is important to understand how individuals move between non-adjacent locations in space. In this research, we introduce a nonlocal diffusion introduce for dengue, which is driven by integral operators. First, we use the semigroup theory and continuously Fréchet differentiable to demonstrate the existence, uniqueness, positivity and boundedness of the solution. Next, the global stability and uniform persistence of the system are proved by analyzing the eigenvalue problem of the nonlocal diffusion term. To achieve this, the Lyapunov function is derived and the comparison principle is applied. Finally, numerical simulations are carried out to validate the results of the theorem, and it is revealed that controlling the disease's spread can be achieved by implementing measures to reduce the transmission of the virus through infected humans and mosquitoes.

Provider Perceptions of Facilitators of and Barriers to Implementation of the Zika Contraception Access Network: A Qualitative Evaluation.

Acosta-Pérez E, Lathrop E, Vega S, Zapata LB, Mendoza Z, Huertas-Pagán X, Hurst S, Powell R, Romero L.

Sept-2023

P R Health Sci J.

<https://pubmed.ncbi.nlm.nih.gov/37709681/>

Preliminary results on an autochthonous dengue outbreak in Lombardy Region, Italy, August 2023.

Cassaniti I, Ferrari G, Senatore S, Rossetti E, Defilippo F, Maffeo M, Vezzosi L, Campanini G, Sarasini A, Paolucci S, Piralla A, Lelli D, Moreno A, Bonini M, Tirani M, Cerutti L, Paglia S, Regazzetti A, Farioli M, Lavazza A, Faccini M, Rovida F, Cereda D, Baldanti F; Lombardy Dengue network; Lombardy Dengue Network.

Sept-2023

Euro Surveill.

<https://pubmed.ncbi.nlm.nih.gov/37707980/>

Development of a plastic waste treatment process by combining deep eutectic solvent (DES) pretreatment and bioaugmentation with a plastic-degrading bacterial consortium.

Krainara S, Mistry AN, Malee C, Chavananikul C, Pinyakong O, Assavalapsakul W, Jitraphai SM, Kachenchart B, Luepromchai E.

15-10-2023

J Hazard Mater.

<https://pubmed.ncbi.nlm.nih.gov/37699265/>

Polyethylene terephthalate (PET), a petroleum-based plastic, and polylactic acid (PLA), a biobased plastic, have a similar visual appearance thus they usually end up in municipal waste treatment facilities. The objective of this project was to develop an effective PET and PLA waste treatment process that involves pretreatment with deep eutectic solvent (DES) followed by biodegradation with a plastic-degrading bacterial consortium in a composting system. The DES used was a mixture of choline chloride and glycerol, while the bacterial strains (*Chitinophaga jiangningensis* EA02, *Nocardioides zeae* EA12, *Stenotrophomonas pavanii* EA33, *Gordonia desulfuricans* EA63, *Achromobacter xylosoxidans* A9 and *Mycobacterium parafortuitum* J101) used to prepare the bacterial consortium were selected based on their ability to biodegrade PET, PLA, and plasticizer. The plastic samples (a PET bottle, PLA cup, and PLA film) were pretreated with DES through a dip-coating method. The DES-coated plastic samples exhibited higher surface wettability and biofilm formation, indicating that DES increases the hydrophilicity of the plastic and facilitates bacterial attachment to the plastic surface. The combined action of DES pretreatment and bioaugmentation with a plastic-degrading bacterial consortium led to improved degradation of PET and PLA samples in various environments, including aqueous media at ambient

temperature, lab-scale traditional composting, and pilot-scale composting.

Adipokine levels and their association with clinical disease severity in patients with dengue.

Kuruppu H, Wickramanayake WPRH, Jeewandara C, Peranantharajah D, Colabage HS, Perera L, Gomes L, Wijewickrama A, Ogg GS, Malavige GN.

07-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37676889/>

Adipokines have not been studied in acute dengue, despite their emerging role in inducing and regulating inflammation. Therefore, we sought to identify adipokine levels in patients with varying severities of acute dengue to understand their role in disease pathogenesis. We determined the levels of leptin, resistin, omentin, adiponectin, as well as IFN β , and NS1 using quantitative ELISA in patients with dengue fever (DF = 49) and dengue haemorrhagic fever (DHF = 22) at admission (febrile phase) and at the time of discharge (recovery phase). The viral loads and serotypes of all samples were quantified using quantitative real-time RT-PCR. Resistin levels ($p = 0.04$) and omentin ($p = 0.006$) levels were significantly higher in patients who developed DHF. Omentin levels in the febrile phase also correlated with the AST (Spearman's $r = 0.38$, $p = 0.001$) and ALT levels (Spearman's $r = 0.24$, $p = 0.04$); as well as serum leptin levels with both AST (Spearman's $r = 0.27$, $p = 0.02$) and ALT (Spearman's $r = 0.28$, $p = 0.02$). Serum adiponectin levels in the febrile phase did not correlate with any of the other adipokines or with liver enzymes, but inversely correlated with CRP levels (Spearman's $r = -0.31$, $p = 0.008$). Although not significant ($p = 0.14$) serum IFN β levels were lower in the febrile phase in those who progressed to develop DHF (median 0, IQR 0 to 39.4 pg/ml), compared to those who had DF (median 37.1, IQR 0 to 65.6 pg/ml). The data suggest that adipokines are likely to play a role in the pathogenesis of dengue, which should be further explored for the potential to be used as prognostic markers and as therapeutic targets.

Jamestown Canyon virus is transmissible by Aedes aegypti and is only moderately blocked by Wolbachia co-infection.

Lau MJ, Dutra HLC, Jones MJ, McNulty BP, Diaz AM, Ware-Gilmore F, McGraw EA.

05-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37669272/>

Jamestown Canyon virus (JCV), a negative-sense arbovirus, is increasingly common in the upper Midwest of the USA. Transmitted by a range of mosquito genera, JCV's primary amplifying host is white-tailed deer. *Aedes aegypti* is responsible for transmitting various positive-sense viruses globally including dengue (DENV), Zika, chikungunya, and Yellow Fever. *Ae. aegypti*'s distribution, once confined to the tropics, is expanding, in part due to climate change. Wolbachia, an insect endosymbiont, limits the replication

of co-infecting viruses inside insects. The release and spread of the symbiont into *Ae. aegypti* populations have been effective in reducing transmission of DENV to humans, although the mechanism of Wolbachia-mediated viral blocking is still poorly understood. Here we explored JCV infection potential in *Ae. aegypti*, the nature of the vector's immune response, and interactions with Wolbachia infection. We show that *Ae. aegypti* is highly competent for JCV, which grows to high loads and rapidly reaches the saliva after an infectious blood meal. The mosquito immune system responds with strong induction of RNAi and JAK/STAT. Neither the direct effect of viral infection nor the energetic investment in immunity appears to affect mosquito longevity. Wolbachia infection blocked JCV only in the early stages of infection. Wolbachia-induced immunity was small compared to that of JCV, suggesting innate immune priming does not likely explain blocking. We propose two models to explain why Wolbachia's blocking of negative-sense viruses like JCV may be less than that of positive-sense viruses, relating to the slowdown of host protein synthesis and the triggering of interferon-like factors like Vago. In conclusion, we highlight the risk for increased human disease with the predicted future overlap of *Ae. aegypti* and JCV ranges. We suggest that with moderate Wolbachia-mediated blocking and distinct biology, negative-sense viruses represent a fruitful comparator model to other viruses for understanding blocking mechanisms in mosquitoes.

Direct mosquito feedings on dengue-2 virus-infected people reveal dynamics of human infectiousness.

Lambrechts L, Reiner RC Jr, Briesemeister MV, Barrera P, Long KC, Elson WH, Vizcarra A, Astete H, Bazan I, Siles C, Vilcarromero S, Leguia M, Kawiecki AB, Perkins TA, Lloyd AL, Waller LA, Kitron U, Jenkins SA, Hontz RD, Campbell WR, Carrington LB, Simmons CP, Ampuero JS, Vasquez G, Elder JP, Paz-Soldan VA, Vazquez-Prokopec GM, Rothman AL, Barker CM, Scott TW, Morrison AC.

01-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37656759/>

LGP2 directly interacts with flavivirus NS5 RNA-dependent RNA polymerase and downregulates its pre-elongation activities.

Tan Z, Wu J, Huang L, Wang T, Zheng Z, Zhang J, Ke X, Zhang Y, Liu Y, Wang H, Tao J, Gong P.

01-09-2023

PLoS Pathog.

<https://pubmed.ncbi.nlm.nih.gov/37656756/>

LGP2 is a RIG-I-like receptor (RLR) known to bind and recognize the intermediate double-stranded RNA (dsRNA) during virus infection and to induce type-I interferon (IFN)-related antiviral innate immune responses. Here, we find that LGP2 inhibits Zika virus (ZIKV) and tick-borne encephalitis virus (TBEV) replication independent of IFN induction. Co-immunoprecipitation (Co-IP) and confocal immunofluorescence data suggest that LGP2 likely colocalizes with the replication complex (RC) of ZIKV by

interacting with viral RNA-dependent RNA polymerase (RdRP) NS5. We further verify that the regulatory domain (RD) of LGP2 directly interacts with RdRP of NS5 by biolayer interferometry assay. Data from in vitro RdRP assays indicate that LGP2 may inhibit polymerase activities of NS5 at pre-elongation but not elongation stages, while an RNA-binding-defective LGP2 mutant can still inhibit RdRP activities and virus replication. Taken together, our work suggests that LGP2 can inhibit flavivirus replication through direct interaction with NS5 protein and downregulates its polymerase pre-elongation activities, demonstrating a distinct role of LGP2 beyond its function in innate immune responses.

Temperature and transmission of chikungunya, dengue, and Zika viruses: A systematic review of experimental studies on *Aedes aegypti* and *Aedes albopictus*.

Delrieu M, Martinet JP, O'Connor O, Viennet E, Menkes C, Burtet-Sarramegna V, D Frentiu F, Dupont-Rouzeyrol M.

24-08-2023

Curr Res Parasitol Vector Borne Dis.

<https://pubmed.ncbi.nlm.nih.gov/37719233/>

Reporting delays of chikungunya cases during the 2017 outbreak in Lazio region, Italy.

Manica M, Marini G, Solimini A, Guzzetta G, Poletti P, Scognamiglio P, Virgillito C, Della Torre A, Merler S, Rosà R, Vairo F, Caputo B.

14-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37708121/>

Convergent trends and spatiotemporal patterns of *Aedes*-borne arboviruses in Mexico and Central America.

Gutierrez B, da Silva Candido D, Bajaj S, Rodriguez Maldonado AP, Ayala FG, Rodriguez MLT, Rodriguez AA, Arámbula CW, González ER, Martínez IL, Díaz-Quinónez JA, Pichardo MV, Hill SC, Thézé J, Faria NR, Pybus OG, Preciado-Llanes L, Reyes-Sandoval A, Kraemer MUG, Escalera-Zamudio M.

06-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37672514/>

Fundamental neurochemistry review: Glutamatergic dysfunction as a central mechanism underlying flavivirus-induced neurological damage.

Nogueira CO, Rocha T, Messor DF, Souza INO, Clarke JR.

Sept-2023

J Neurochem.

<https://pubmed.ncbi.nlm.nih.gov/37603368/>

The Flaviviridae family comprises positive-sense single-strand RNA viruses mainly transmitted by arthropods. Many of these pathogens are especially deleterious to the

nervous system, and a myriad of neurological symptoms have been associated with infections by Zika virus (ZIKV), West Nile virus (WNV), and Japanese encephalitis virus (JEV) in humans. Studies suggest that viral replication in neural cells and the massive release of pro-inflammatory mediators lead to morphological alterations of synaptic spine structure and changes in the balance of excitatory/inhibitory neurotransmitters and receptors. Glutamate is the predominant excitatory neurotransmitter in the brain, and studies propose that either enhanced release or impaired uptake of this amino acid contributes to brain damage in several conditions. Here, we review existing evidence suggesting that glutamatergic dysfunction-induced by flaviviruses is a central mechanism for neurological damage and clinical outcomes of infection. We also discuss current data suggesting that pharmacological approaches that counteract glutamatergic dysfunction show benefits in animal models of such viral diseases.

Fallibility and flaviviruses: a diagnostic lesson in Japanese encephalitis.

Proudmore K, Krause VL, Currie BJ, Baird R.

18-09-2023

Med J Aust.

<https://pubmed.ncbi.nlm.nih.gov/37573147/>

Neutrophil infiltration leads to fetal growth restriction by impairing the placental vasculature in DENV-infected pregnant mice.

Zhang Y, Sheng Z, Chen Q, Zhou A, Cao J, Xue F, Ye Y, Wu N, Gao N, Fan D, Liu L, Li Y, Wang P, Liang L, Zhou D, Zhang F, Li F, An J.

Sept-2023

EBioMedicine.

<https://pubmed.ncbi.nlm.nih.gov/37544202/>

Background: Dengue virus (DENV) infection during pregnancy increases the risk of adverse fetal outcomes, which has become a new clinical challenge. However, the underlying mechanism remains unknown. **Methods:** The effect of DENV-2 infection on fetuses was investigated using pregnant interferon α/β receptor-deficient (Ifnar1^{-/-}) mice. The histopathological changes in the placentas were analyzed by morphological techniques. A mouse inflammation array was used to detect the cytokine and chemokine profiles in the serum and placenta. The infiltration characteristics of inflammatory cells in the placentas were evaluated by single-cell RNA sequencing. **Findings:** Fetal growth restriction observed in DENV-2 infection was mainly caused by the destruction of the placental vasculature rather than direct damage from the virus in our mouse model. After infection, neutrophil infiltration into the placenta disrupts the expression profile of matrix metalloproteinases, which leads to placental dysvascularization and insufficiency. Notably, similar histopathological changes were observed in the placentas from DENV-infected puerperae. **Interpretation:** Neutrophils play key roles in placental histopathological damage during DENV infection, which indicates that interfering with aberrant neutrophil infiltration into the

placenta may be an important therapeutic target for adverse pregnancy outcomes in DENV infection. **Funding:** The National Key Research and Development Plans of China (2021YFC2300200-02 to J.A., 2019YFC0121905 to Q.Z.C.), the National Natural Science Foundation of China (NSFC) (U1902210 and 81972979 to J. A., 81902048 to Z. Y. S., and 82172266 to P.G.W.), and the Support Project of High-level Teachers in Beijing Municipal Universities in the Period of 13th Five-year Plan, China (IDHT20190510 to J. A.).

Miconia albicans (Melastomataceae) to treat Chikungunya viral infection: An effectual symptom-driven ethnomedicinal repurposing of an anti-inflammatory species?

do Nascimento SN, Mazzei JL, Tostes JBF, Nakamura MJ, Valente LMM, de Lima RC, Nunes PCG, de Azeredo EL, Berrueta LA, Gallo B, Siani AC.

10-01-2023

J Ethnopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37451491/>

Safety, Tolerability, and Pharmacokinetics of JNJ-1802, a Pan-serotype Dengue Direct Antiviral Small Molecule, in a Phase 1, Double-Blind, Randomized, Dose-Escalation Study in Healthy Volunteers.

Ackaert O, Vanhoutte F, Verpoorten N, Buelens A, Lachau-Durand S, Lammens L, Hoetelmans R, Van Loock M, Herrera-Taracena G.

18-09-2023

Clin Infect Dis.

<https://pubmed.ncbi.nlm.nih.gov/37161721/>

Background: Dengue is a growing global health threat with no specific antiviral drugs available for treatment or prophylaxis. This first-in-human, double-blind, randomized, placebo-controlled study aimed to examine the safety, tolerability, and pharmacokinetics of increasing single and multiple oral doses of JNJ-1802, a pan-serotype dengue antiviral small molecule. **Methods:** Eligible healthy participants (18-55 years of age) were randomized to receive oral JNJ-1802 in fasted conditions as (1) single doses (50-1200 mg; n = 29) or placebo (n = 10); or (2) once-daily doses (50-560 mg for 10 consecutive days or 400 mg for 31 days; n = 38) or placebo (n = 9). Safety and tolerability were evaluated throughout the study. Plasma and urine samples were collected at predetermined time points to characterize pharmacokinetics. **Results:** JNJ-1802 was generally safe and well-tolerated. One grade 3 adverse event (depression) was reported but not considered drug-related by the investigator. Two grade 2 events of rash occurred (multiple-dose part) that were considered very likely related to JNJ-1802 by the investigator and resolved. No clinically relevant changes were observed in laboratory tests, electrocardiograms, or vital signs. JNJ-1802 exposure after single or multiple doses increased dose-proportionally from 50 to 150 mg and less than dose-proportionally for higher doses. The terminal elimination half-life was 6.3-9.2 days and the

accumulation factor was 4.3-7.3 after 10 days and 14.6 after 31 days with low amounts of unchanged drug in urine (<0.001% of the 400 mg dose). **Conclusions:** Pharmacokinetics and safety results of JNJ-1802 support further clinical development for the treatment and prevention of dengue infection.

Sonication and heat-mediated synthesis, characterization and larvicidal activity of sericin-based silver nanoparticles against dengue vector (Aedes aegypti).

Summer M, Tahir HM, Ali S.

Oct-2023

Microsc Res Tech.

<https://pubmed.ncbi.nlm.nih.gov/37119431/>

Fabrication, characterization and evaluation of the larvicidal potential of novel silk protein (sericin)-based silver nanoparticles (Se-AgNPs) were the prime motives of the designed study. Furthermore, investigation of the sericin as natural reducing or stabilizing agent was another objective behind this study. Se-AgNPs were synthesized using sonication and heat. Fabricated Se-AgNPs were characterized using particle size analyzer, UV spectrophotometry, FTIR and SEM which confirmed the fabrication of the Se-AgNPs. Size of sonication-mediated Se-AgNPs was smaller (7.49 nm) than heat-assisted Se-AgNPs (53.6 nm). Being smallest in size, sonication-assisted Se-AgNPs revealed the significantly highest ($F_{4,10} = 39.20$, $p = .00$) larvicidal activity against fourth instar lab and field larvae ($F_{4,10} = 1864$, $p = .00$) of dengue vector (*Aedes aegypti*) followed by heat-assisted Se-AgNPs and positive control (temephos). Non-significant larvicidal activity was showed by silver (without sericin) which made the temperature stability of silver, debatable. Furthermore, findings of biochemical assays (glutathione-S transferase, esterase, and acetylcholinesterase) showed the levels of resistance in field strain larvae. Aforementioned findings of the study suggests the sonication as the best method for synthesis of Se-AgNPs while the larvicidal activity is inversely proportional to the size of Se-AgNPs, i.e., smallest the size, highest the larvicidal activity. Conclusively, status of the sericin as a natural reducing/stabilizing agent has been endorsed by the findings of this study. **RESEARCH HIGHLIGHTS:** Incorporation of biocompatible and inexpensive sericin as a capping/reducing agent for synthesis of Se-AgNPs. A novel sonication method was used for the fabrication of Se-AgNPs which were thoroughly characterized by particle size analyzer, UV-visible spectrophotometry, SEM and FTIR. Analysis of enzymatic (GSTs, ESTs) levels in field and lab strains of *Aedes aegypti* larvae for evaluation of insecticides resistance.

Quercetin against Emerging RNA Viral Diseases: Potential and Challenges for Translation.

Subudhi BB, Swain RP.

2023

Curr Mol Med.

<https://pubmed.ncbi.nlm.nih.gov/35996254/>

Dracunculose

Functional and histological effects of *Anthurium schlechtendalii* Kunth extracts on adenine-induced kidney damage of adult Wistar rats.

Calderón-Garcidueñas AL, Barradas-Dermitz DM, Nolasco-Hipolito C, López-Amador N, Ajibola OO, Carvajal-Zarrabal O.

Sept-2023

Toxicol.

<https://pubmed.ncbi.nlm.nih.gov/37652102/>

Anthurium schlechtendalii Kunth is used by the Zoque group in southeastern Mexico for kidney and urinary diseases, but its safety and effectiveness are unproven, therefore a model of adenine-induced renal failure in rats was performed. The rats were fed with solid and aqueous plant extracts for 4 weeks to study its effects on kidney histological morphology. Kidneys were examined, and statistical analysis was performed. The adenine-containing diet caused renal failure, characterized by crystal deposits, cystic dilatation of tubules, and micro-abscesses. Both extracts caused tubular damage and collagen increase without inflammation. However, when combined with adenine, the extracts showed some protective effects, although cystic dilatation and granulomatous inflammation were observed. The extracts at the tested doses resulted in glomerular and tubular damage, aggravating cystic degeneration, therefore, its indiscriminate use in Humans is not safe. Additionally, the extracts can serve as a model for studying renal damage without crystal deposits.

Acetylcholine (ACh) enhances Cd tolerance through transporting ACh in vesicles and modifying Cd absorption in duckweed (*Lemna turionifera* 5511).

Yang L, Ma X, Guo Y, He Y, Yang Y, Wang W, Xu Z, Zuo Z, Xue Y, Yang R, Han B, Sun J.

15-10-2023

Environ Pollut.

<https://pubmed.ncbi.nlm.nih.gov/37580008/>

Development of microbial fuel cell integrated constructed wetland (CMFC) for removal of paracetamol and diclofenac in hospital wastewater.

Jain M, Sai Kiran P, Ghosal PS, Gupta AK.

15-10-2023

J Environ Manage.

<https://pubmed.ncbi.nlm.nih.gov/37536238/>

Physical and chemical effects of conventional microplastic glitter versus alternative glitter particles on a freshwater plant (Lemnaceae: *Lemna minor*).

Boots B, Green DS, Olah-Kovacs B, De Falco F, Lupo E.

15-09-2023

Ecotoxicol Environ Saf.

<https://pubmed.ncbi.nlm.nih.gov/37494737/>

Glitters are primary microplastics which are directly littered into the environment, yet the ecological effects have seldom been tested. When microplastics enter the environment, their physical presence and chemical leachate may alter the physiology of primary producers. Glitter can be composed of plastic or natural and/or biodegradable materials, often with additives. Three experiments were run for 14 days to separate chemical and physical effects of different types of glitter: polyethylene terephthalate (PET), biodegradable modified regenerated cellulose (MRC), synthetic mica, and a natural particle control (kaolinite) on several physical characteristics of *Lemna minor* (common duckweed). *L. minor* was exposed to either fresh (chemical and physical effects), leachate from glitter (chemical) or aged glitter (physical). Overall, there was little effect of PET, synthetic mica, kaolinite or of any aged glitter. High concentrations of fresh MRC glitters, however, decreased root length, biomass and chlorophyll content of *L. minor*. Some of these effects were also present when exposed to leachate from MRC glitters, but were less pronounced. Elemental analysis revealed the presence of metals in MRC glitters which may explain these responses. Short-term ecotoxicity of biodegradable glitters can arise due to their physical and chemical properties, but may lessen over time as their surface coating degrades.

Konjac glucomannan-based hydrogels with health-promoting effects for potential edible electronics applications: A mini-review.

Waresindo WX, Priyanto A, Sihombing YA, Hapidin DA, Edikresnha D, Aimon AH, Suciati T, Khairurrijal K.

01-09-2023

Int J Biol Macromol.

<https://pubmed.ncbi.nlm.nih.gov/37473898/>

Konjac glucomannan (KGM), a dietary fiber hydrocolloid polysaccharide isolated from *Amorphophallus konjac* tubers, has potential applications in various fields. However, the use of KGM-based hydrogels has mainly focused on the food, biomedical, and water treatment industries. KGM possesses several health benefits and could be a promising candidate for use in edible electronics. This paper presents the first review of KGM-based hydrogels as edible electronics and their potential health benefits. The paper initially focuses on the health-promoting effects of KGM-based hydrogels, such as prebiotic effects, antiobesity, antioxidant, and antibacterial properties. Then, it discusses the feasible design strategies for KGM-based hydrogels as edible electronics, considering their flexibility, mechanical properties, response to stimuli, degradability aspects, their role as electronic device components, and the retention period of the devices. Finally, this review outlines future directions for developing KGM-based hydrogels for use in edible electronics.

Xiao-Ban-Xia decoction mitigates cisplatin-induced emesis via restoring

PINK1/Parkin mediated mitophagy deficiency in a rat pica model.

Zhao Y, Han J, Hu W, Dai Y, Wu X, Liao X, Zhou H, Nie K.
10-01-2023

J Ethnopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37422100/>

Echinococcosis

First report of infection with metacestode stages of *Echinococcus multilocularis* in a kulan (*Equus hemionus kulan*) from Slovakia.

Delling C, Helm C, Heinze P, Friedman M, Böttcher D.
09-09-2023

Int J Parasitol Parasites Wildl.

<https://pubmed.ncbi.nlm.nih.gov/37736617/>

While the principle definitive host of the zoonotic cestode *Echinococcus multilocularis* in Europe is the red fox, several rodent species act as main intermediate hosts. Among others, e.g., humans, dogs, and pigs, also horses have been described to act as aberrant hosts in highly endemic regions. Here, a case of an *E. multilocularis* infection in a kulan (*Equus hemionus kulan*) is described. The five years old kulan from a zoo in Slovakia was transported to an animal park in Germany. The animal had to be euthanized within a few weeks after the import due to its poor general state of health. The pathological examination revealed a nodular mass in the liver as an incidental finding. By histological examination of the mass, a pyogranulomatous and necrotizing inflammation and intralesional fragments of amorphous eosinophil layers were detected. The suspected diagnosis of *E. multilocularis* infection was confirmed by PCR addressing parts of the genes 12S rRNA and the NADH dehydrogenase subunit 2, showing very high identities with isolates from France, Slovakia and the USA.

Mitogenomic exploration supports the historical hypothesis of anthropogenic diffusion of a zoonotic parasite *Echinococcus multilocularis*.

Hayashi N, Nakao R, Ohari Y, Irie T, Kouguchi H, Chatanga E, Mohamed WMA, Moustafa MAM, Kinoshita G, Okamoto M, Yagi K, Nonaka N.

26-08-2023

iScience.

<https://pubmed.ncbi.nlm.nih.gov/37731622/>

Animal movement across regions owing to human activity can lead to the introduction of pathogens, resulting in disease epidemics with medical and socioeconomic significance. Here, we validated the hypothesis that human activity, such as the transportation of infected animals, has played a significant role in introducing the zoonotic parasite *Echinococcus multilocularis* into Hokkaido, Japan, by synthesizing and evaluating parasite genetic data in light of historical records. Our analysis indicates that a major genetic group in Hokkaido originated from St. Lawrence Island, USA, which is in

accordance with the route suggested by historical descriptions. Moreover, we identified a minor genetic group closely related to parasites found in Sichuan, China. This fact implies that parasite invasion in Japan may result from complex and inadvertent animal translocations. These findings emphasize the anthropogenic impacts on zoonotic parasite spread and provide a crucial perspective for preventing future potential epidemics.

***Echinococcus granulosus* promotes bone resorption by increasing osteoclasts differentiation.**

Sun H, Wang S, Tan W, Li Y, Ren Q, Liu Y, Huang Y, Shi C, Li J.

16-09-2023

Acta Trop.

<https://pubmed.ncbi.nlm.nih.gov/37722448/>

The high burden of pediatric cystic echinococcosis in Kazakhstan: epidemiological and clinical consequences.

Doszhanova G, Colpani A, Duisenova A, De Vito A, Zholdybay Z, Juskiewicz K, Brunetti E, Katarbayev A, Kaniyev S, Zhakenova Z, Manciuoli T, Mustapayeva A.

18-09-2023

Trans R Soc Trop Med Hyg.

<https://pubmed.ncbi.nlm.nih.gov/37721185/>

Background: Cystic echinococcosis (CE) is attributable to *Echinococcus granulosus* metacestodes. Ultrasound examinations enable a stage-specific approach to CE management. However, this approach is not often applied in endemic areas, which include Kazakhstan. **Methods:** We collected clinical and ultrasound data on CE pediatric patients seen at a national referral surgical center in Almaty, Kazakhstan, during 2015-2020. **Results:** We included 49 patients, and 79 cysts that were all surgically treated. All but one patient carried active cysts (CE1-CE3 stages). Twenty-six (53.2%) did not receive albendazole postsurgery. Children with CE1 and CE3a cysts underwent surgery, while the use of albendazole and percutaneous drainage were advised upon by experts.

Conclusions: A stage-specific approach to CE management in Kazakhstan is urgent, especially in the pediatric population. The rate of active cysts suggests continuing transmission of CE.

Primary cerebral cystic echinococcosis in a child from Roman countryside: Source attribution and scoping review of cases from the literature.

Casulli A, Pane S, Randi F, Scaramozzino P, Carvelli A, Marras CE, Carai A, Santoro A, Santolamazza F, Tamarozzi F, Putignani L.

05-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37669300/>

Background: Human cystic echinococcosis (CE) is a zoonotic parasitic infection caused by the larval stage of the species belonging to the *Echinococcus granulosus*

sensu lato (s.l.) complex. Parasitic cysts causing human CE are mainly localized in the liver and in the lungs. In a smaller number of cases, larvae may establish in any organ or tissue, including the central nervous system (CNS). Cerebral CE (CCE) is rare but poses serious clinical challenges. **Methods:** This study presents a case of CCE in a child living in the countryside near Rome (Italy), along with a comparative molecular analysis of the isolated cyst specimens from the patient and sheep of local farms. We also systematically searched the literature to summarize the most relevant epidemiological and clinical aspects of this uncommon localization. **Findings:** The comparative molecular analysis confirmed that the infection was caused by *E. granulosus sensu stricto* (s.s.) (G3 genotype), and most likely acquired in the family farm. The literature search identified 2,238 cases of CCE. In 80.51% of cases, brain was the only localization and single CCE cysts were present in 84.07% of cases. Mean patients' age was 20 years and 70.46% were children. Cyst rupture was reported in 12.96% and recurrence of CCE after treatment in 9.61% of cases. Permanent disability was reported in 7.86% of cases, while death occurred in 6.21%. In case series reporting all CE localization, CCE represented 1.5% of all CE cases. In the few reports that identified at molecular level the CCE cyst, *E. granulosus* s.s. was found in 40% and *E. canadensis* in 60% of cases. **Conclusions:** We report a rare case of CCE and evidenced the probable local origin of infection. The proportions of CE cases with uncommon localizations and with high impact on patients' lives have been globally neglected and should be included in the computation of the global burden of CE.

Central nervous system hydatidosis around the world: a systematic review.

Pour-Rashidi A, Turgut M, Fallahpour M, Mohammadi E, Hanaei S, Rezaei N.

Oct-2023

J Neurosurg Sci.

<https://pubmed.ncbi.nlm.nih.gov/36800683/>

Filariose lymphatique

Evidence-based indications for ivermectin in parasitic diseases: An integrated approach to context and challenges in Peru.

Failoc-Rojas VE, Silva-Díaz H, Maguiña JL, Rodríguez-Morales AJ, Díaz-Velez C, Apolaya-Segura M, Valladares-Garrido MJ.

01-08-2023

Parasite Epidemiol Control.

<https://pubmed.ncbi.nlm.nih.gov/37731824/>

Ivermectin has emerged as a therapeutic option for various parasitic diseases, including strongyloidiasis, scabies, lice infestations, gnathostomiasis, and myiasis. This study comprehensively reviews the evidence-based indications for ivermectin in treating parasitic diseases, considering the unique context and challenges in Peru. Fourteen studies were selected from a systematic search of scientific evidence on ivermectin in PubMed, from 2010 to July 2022. The optimal dosage of ivermectin for treating

onchocerciasis, strongyloidiasis, and enterobiasis ranges from 150 to 200 µg/kg, while lymphatic filariasis requires a higher dose of 400 µg/kg (Brown et al., 2000). However, increased dosages have been associated with a higher incidence of ocular adverse events. Scientific evidence shows that ivermectin can be safely and effectively administered to children weighing less than 15 kg. Systematic reviews and meta-analyses provide strong support for the efficacy and safety of ivermectin in combating parasitic infections. Ivermectin has proven to be an effective treatment for various parasitic diseases, including intestinal parasites, ectoparasites, filariasis, and onchocerciasis. Dosages ranging from 200 µg/kg to 400 µg/kg are generally safe, with adjustments made according to the specific pathology, patient age, and weight/height. Given Peru's prevailing social and environmental conditions, the high burden of intestinal parasites and ectoparasites in the country underscores the importance of ivermectin in addressing these health challenges.

Diethylcarbamazine elicits Ca²⁺ signals through TRP-2 channels that are potentiated by emodepside in *Brugia malayi* muscles.

Williams PDE, Kashyap SS, Robertson AP, Martin RJ.

20-09-2023

Antimicrob Agents Chemother.

<https://pubmed.ncbi.nlm.nih.gov/37728916/>

Safety and tolerability of moxidectin and ivermectin combination treatments for lymphatic filariasis in Côte d'Ivoire: A randomized controlled superiority study.

Bjerum CM, Koudou BG, Ouattara AF, Lew D, Goss CW, Gabo PT, King CL, Fischer PU, Weil GJ, Budge PJ.

18-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37721964/>

Background: Moxidectin is a macrocyclic lactone registered for the treatment of human onchocerciasis. The drug has a good safety profile, large volume of distribution and a long elimination half-life. This paper reports tolerability data from the first use of moxidectin in persons with *Wuchereria bancrofti* infection. **Methods:** In this randomized, open-label, masked-observer superiority trial, adults with *Wuchereria bancrofti* microfilaremia in Côte d'Ivoire were randomized to 1 of 4 treatment arms: ivermectin + albendazole (IA), moxidectin + albendazole (MoxA), ivermectin + diethylcarbamazine (DEC) + albendazole (IDA), or moxidectin + DEC + albendazole (MoxDA). As part of a larger efficacy trial, all participants were closely monitored for 7 days after treatment. **Results:** One hundred sixty-four individuals were treated, and monitored for treatment emergent adverse events (TEAE). Eighty-seven participants (53%) experienced one or more mild (grade 1) or moderate (grade 2) TEAE. Four participants had transient Grade 3 hematuria after treatment (3 after IDA and 1 after IA). There were no serious adverse events. There were no significant

differences in frequency or types of TEAE between treatment groups (IA = 22/41 (53%), MoxA = 24/40 (60%), IDA = 18/41 (44%), MoxDA = 15/42 (36%), $p = 0.530$). Fifty-nine participants (36%) had multiple TEAE, and 8.5% had a one or more grade 2 (moderate) TEAE. Grade 2 TEAE were more frequent after triple drug treatments (IDA, 14.6%; MoxDA, 9.5%) than after two-drug treatments (IA, 7.3%; MoxA, 2.5%). There was no difference in TEAEs based on baseline Mf counts (OR 0.69 (0.33, 1.43), p -value 0.319). **Conclusion:** All treatment regimens were well tolerated. We observed no difference in safety parameters between regimens that contained ivermectin or moxidectin.

Coverage of preventive measures and surveillance for neglected tropical diseases in hard-to-reach communities in Ghana.

Forson AO, Awuah RB, Mohammed AR, Owusu-Asenso CM, Akosah-Brempong G, Abdulai A, Sraaku IK, Dhikrullahi SB, Atakora SB, Attah SK, Afrane YA.

14-09-2023

BMC Public Health.

<https://pubmed.ncbi.nlm.nih.gov/37710219/>

Background: Neglected tropical diseases (NTDs) are a major public health burden which mainly affects poor populations living in tropical environments and hard-to-reach areas. The study sought to examine coverage of preventive efforts, and case surveillance for NTDs in hard-to-reach communities in Ghana. **Methods:** The study investigated treatment efforts for lymphatic filariasis (LF), and onchocerciasis and schistosomiasis/soil transmitted helminths (SCH/STH) at household level, in difficult-to-access communities in Ghana. A total of 621 households were sampled from 6 communities in the Western, Oti and Greater Accra regions. **Results:** Over 95% of the households surveyed were covered under mass drug administration (MDA) campaigns for lymphatic filariasis (LF) and onchocerciasis. More than 80% of households had received at least two visits by community drug distributors under the MDA campaigns in the last two years preceding the study. In addition, over 90% of households in the LF and onchocerciasis endemic communities had at least one member using anthelmintic medications under the MDA campaigns in the 12 months preceding the study. However, households where no member had taken anthelmintic medications in 12 months preceding the study were over 6 times likely to have someone in the household with LF. **Conclusions:** This study determined that SCH/STH, LF and onchocerciasis are of serious public health concern in some communities in Ghana. There is an urgent need for holistic practical disease control plan involving both financial and community support to ensure total control of NTDs in difficult-to-access communities is achieved.

How correlations between treatment access and surveillance inclusion impact neglected tropical disease monitoring and evaluation-A simulated study.

Clark J, Davis EL, Prada JM, Gass K, Krentel A, Hollingsworth TD.

06-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37672518/>

Comparison of collection methods for *Phlebotomus argentipes* sand flies to use in a molecular xenomonitoring system for the surveillance of visceral leishmaniasis.

McIntyre-Nolan S, Kumar V, Mark-Carew M, Kumar K, Nightingale ES, Dalla Libera Marchiori G, Rogers ME, Kristan M, Campino S, Medley GF, Das P, Cameron MM.

01-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37656745/>

Factors Influencing Drug Compliance Among Adult with Lymphatic Filariasis in Indonesia: Findings From Nationwide Population-Based Health Survey.

Ipa M, Astuti EP, Wahono T, Laksono AD, Cahyati Y, Dhewantara PW.

Sept-2023

Asia Pac J Public Health.

<https://pubmed.ncbi.nlm.nih.gov/37649276/>

Gale

Scabies: UK treatment shortage poses public health threat, warn dermatologists.

Mahase E.

21-09-2023

BMJ.

<https://pubmed.ncbi.nlm.nih.gov/37734758/>

Evidence-based indications for ivermectin in parasitic diseases: An integrated approach to context and challenges in Peru.

Failoc-Rojas VE, Silva-Díaz H, Maguiña JL, Rodriguez-Morales AJ, Díaz-Velez C, Apolaya-Segura M, Valladares-Garrido MJ.

01-08-2023

Parasite Epidemiol Control.

<https://pubmed.ncbi.nlm.nih.gov/37731824/>

Ivermectin has emerged as a therapeutic option for various parasitic diseases, including strongyloidiasis, scabies, lice infestations, gnathostomiasis, and myiasis. This study comprehensively reviews the evidence-based indications for ivermectin in treating parasitic diseases, considering the unique context and challenges in Peru. Fourteen studies were selected from a systematic search of scientific evidence on ivermectin in PubMed, from 2010 to July 2022. The optimal dosage of ivermectin for treating onchocerciasis, strongyloidiasis, and enterobiasis ranges from 150 to 200 µg/kg, while lymphatic filariasis requires a higher dose of 400 µg/kg (Brown et al., 2000). However, increased dosages have been associated with a higher

incidence of ocular adverse events. Scientific evidence shows that ivermectin can be safely and effectively administered to children weighing less than 15 kg. Systematic reviews and meta-analyses provide strong support for the efficacy and safety of ivermectin in combating parasitic infections. Ivermectin has proven to be an effective treatment for various parasitic diseases, including intestinal parasites, ectoparasites, filariasis, and onchocerciasis. Dosages ranging from 200 µg/kg to 400 µg/kg are generally safe, with adjustments made according to the specific pathology, patient age, and weight/height. Given Peru's prevailing social and environmental conditions, the high burden of intestinal parasites and ectoparasites in the country underscores the importance of ivermectin in addressing these health challenges.

Investigation of the effectiveness of teledermatology in the diagnosis of skin lesions in pediatric patients.

Taslidere N, Kucuk OS.

18-09-2023

Rev Assoc Med Bras (1992).

<https://pubmed.ncbi.nlm.nih.gov/37729222/>

Objective: Teledermatology is the use of communications technology to enable the remote evaluation of skin lesions. Dermatological complaints are common among pediatric patients and should be handled differently than adults. The aim of this study is to group the dermatological lesions of pediatric patients who visited a dermatology outpatient clinic and to investigate in which groups the teledermatology method is more effective. **Methods:** This is a prospective observational study. Images of skin lesions, which were examined face-to-face in a dermatology outpatient clinic, were transmitted to another dermatologist via telecommunication. The diagnoses by the physician who examined patients face-to-face were compared with the diagnoses by the teledermatologist. Informed consent was obtained from the parents or legal representatives of all patients participating in this study. **Results:** A total of 93 pediatric patients were evaluated. In our study, the diagnoses by a dermatologist who evaluated patients face-to-face and the diagnoses by a teledermatologist were in agreement with 74.2% of the time. There was 100% agreement between both dermatologists for the diagnosis of acne and scabies. The diagnosis for verruca was consistent with 91.7% of the time, and for atopic dermatitis, it was 72.7%. There was a 25% consistency between both dermatologists on the diagnosis of contact dermatitis. The diagnostic consistency between both physicians was 53% in the erythematous disease group, 89% in the papulopustular group, and 70% in the pigmented group. **Conclusion:** Teledermatology is a reliable diagnostic method that shortens the waiting time of patients and provides a quick consultation with a dermatologist. When using the teledermatology method, it is important to know which skin lesions or disease groups are more accurately diagnosed.

Nodular scabies mimicking insect bites.

Grau-Echevarría A, Labrandero-Hoyos C, Peñuelas-Leal R, Pérez-Ferriols A.

19-09-2023

Infection.

<https://pubmed.ncbi.nlm.nih.gov/37725306/>

The Parasites of Cats in Türkiye.

Barılı Ö, Tuygun T, Gençay Topçu EB, Umur Ş.

18-09-2023

Türkiye Parazitol Derg.

<https://pubmed.ncbi.nlm.nih.gov/37724370/>

Scientometric Evaluation of the Itch Mite, *Sarcoptes scabiei* (Acari: Sarcoptidae): The Last Four Decades of Global Academic Output on Scabies.

Mumcuoğlu KY, Şenel E, Taylan Özkan A.

18-09-2023

Türkiye Parazitol Derg.

<https://pubmed.ncbi.nlm.nih.gov/37724367/>

Scabies tunnel and lesions.

Yamada T, Ohwada S.

15-09-2023

Am J Med Sci.

<https://pubmed.ncbi.nlm.nih.gov/37717825/>

In vitro and in vivo anti-eczema effect of *Artemisia annua* aqueous extract and its component profiling.

Zhao Y, Zhu L, Yang L, Chen M, Sun P, Ma Y, Zhang D, Zhao Y, Jia H.

10-01-2024

J Ethnopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37604330/>

Ethnopharmacological relevance: *Artemisia annua* L. belongs to the Asteraceae family and has a long history of clinical application in China. It has been widely used for centuries to treat fever, malaria, jaundice and some skin diseases (such as scabies and sores). Modern pharmacological studies have shown that it has anti-inflammatory, immunomodulatory, antimalarial and antibacterial effects. **Aim of study:** This study aimed to investigate the anti-eczema effect of *A. annua* aqueous extract (AAE), profile its potential bioactive components and try to explore its possible underlying mechanisms. **Materials and methods:** The MTT assay was employed to assess the cytotoxicity of AAE. The anti-eczema effect of AAE was evaluated using both an in vitro 3D epidermal inflammation model and an in vivo guinea pig itching model. The bioactive components of AAE were characterized by ultra-performance liquid chromatography quadrupole time-of-flight mass spectrometry coupled with the UNIFI platform. **Results:** In this study, we found that AAE is safe for primary human skin keratinocytes at concentrations ranging from 31.3 µg/mL to 250 µg/mL. Further investigations indicate that AAE can increase the itching threshold, inhibit the expression of the inflammatory cytokine TSLP, and promote the expression of FLG mRNA. Additionally, the

utilization of UPLC-QTOF/MS and UNIFI platform enabled us to identify 61 potential bioactive components of AAE, with sesquiterpenes and phenolic acids being the most abundant components. **Conclusions:** In this study, the anti-inflammatory and anti-itch effects of the *A. annua* extract were revealed, along with sesquiterpenes and phenolic acids were identified as potential bioactive components according to literature. The AAE extract holds potential for utilization in the treatment of eczema.

How does *Sarcoptes scabiei* var. *hominis* meet its oxygen needs?

Yürekli A.

Oct-2023

J Am Acad Dermatol.

<https://pubmed.ncbi.nlm.nih.gov/37271456/>

Examining the cyclical nature of scabies using historical texts.

Walker MD.

Oct-2023

Int J Dermatol.

<https://pubmed.ncbi.nlm.nih.gov/37203874/>

Helminthiasis transmises par le sol (ascaridiose, trichuriase, ankylostomiase)

Parasitic, bacterial, viral, immune-mediated, metabolic and nutritional factors associated with nodding syndrome.

Edridge AWD, Abd-Elfarag G, Deijis M, Broeks MH, Cristella C, Sie B, Vaz FM, Jans JJM, Calis J, Verhoef H, Demir A, Poppert S, Nickel B, van Dam A, Sebit B, Titulaer MJ, Verweij JJ, de Jong MD, van Gool T, Faragher B, Verhoeven-Duif NM, Elledge SJ, van der Hoek L, Boele van Hensbroek M.

17-08-2023

Brain Commun.

<https://pubmed.ncbi.nlm.nih.gov/37731906/>

Nodding syndrome is a neglected, disabling and potentially fatal epileptic disorder of unknown aetiology affecting thousands of individuals mostly confined to Eastern sub-Saharan Africa. Previous studies have identified multiple associations-including *Onchocerca volvulus*, antileishmanin-1 antibodies, vitamin B₆ deficiency and measles virus infection-yet, none is proven causal. We conducted a case-control study of children with early-stage nodding syndrome (symptom onset <1 year). Cases and controls were identified through a household survey in the Greater Mundri area in South Sudan. A wide range of parasitic, bacterial, viral, immune-mediated, metabolic and nutritional risk factors was investigated using conventional and state-of-the-art untargeted assays. Associations were examined by multiple logistic regression analysis, and a hypothetical causal model was constructed

using structural equation modelling. Of 607 children with nodding syndrome, 72 with early-stage disease were included as cases and matched to 65 household- and 44 community controls. *Mansonella perstans* infection (odds ratio 7.04, 95% confidence interval 2.28-21.7), *Necator americanus* infection (odds ratio 2.33, 95% confidence interval 1.02-5.3), higher antimalarial seroreactivity (odds ratio 1.75, 95% confidence interval 1.20-2.57), higher vitamin E concentration (odds ratio 1.53 per standard deviation increase, 95% confidence interval 1.07-2.19) and lower vitamin B₁₂ concentration (odds ratio 0.56 per standard deviation increase, 95% confidence interval 0.36-0.87) were associated with higher odds of nodding syndrome. In a structural equation model, we hypothesized that *Mansonella perstans* infection, higher vitamin E concentration and fewer viral exposures increased the risk of nodding syndrome while lower vitamin B₁₂ concentration, *Necator americanus* and malaria infections resulted from having nodding syndrome. We found no evidence that *Onchocerca volvulus*, antileishmanin-1 antibodies, vitamin B₆ and other factors were associated with nodding syndrome. Our results argue against several previous causal hypotheses including *Onchocerca volvulus*. Instead, nodding syndrome may be caused by a complex interplay between multiple pathogens and nutrient levels. Further studies need to confirm these associations and determine the direction of effect.

Evaluation of recombinant *Babesia gibsoni* thrombospondin-related adhesive protein (BgTRAP) for the sero-diagnosis of canine babesiosis.

Deepa CK, Varghese A, Ajith Kumar KG, Nandini A, Kumar GS, Hembram PK, Dinesh CN, Juliet S, Vergis J, Sindhu OK, Ravindran R.

16-09-2023

Exp Parasitol.

<https://pubmed.ncbi.nlm.nih.gov/37722650/>

Assessment of the capacity of Whatman filter papers as support to store stools for the molecular diagnostic testing of soil-transmitted helminthiasis.

Cyrille KN, Pythagore FS, Auvaker TZA, Estelle MM, Edmond MTL, Macaire WH, Gustave S.

15-09-2023

J Microbiol Methods.

<https://pubmed.ncbi.nlm.nih.gov/37717625/>

Storage of stools for the detection of soil-transmitted helminths (STH) remains challenging for the molecular diagnostic testing of STH infections. This study aimed to overcome this challenge by assessing the capacity of Whatman filter papers to store stools for the molecular detection of STHs. Stool samples were collected from school-aged children of soil-transmitted helminthiasis endemic areas of Cameroon and then, analysed using Kato Katz technique. For this study, 128 and 40 stool samples respectively with and without STH eggs were analysed. From each sample, 10, 20, 40 and 80 mg of stool were weighted and spread on 6 grades of Whatman filter papers

that were stored at room temperature from one to ten weeks. DNA was extracted from spread stool using CTAB based-method. The amount of stool to spread on filter papers and the grade of filter paper offering good storage were determined by amplifying specific DNA fragments of *Ascaris lumbricoides*. The capacity of filter papers to store stool samples for several weeks before the molecular detection of STH species was assessed by amplifying specific DNA fragments of different STHs. The amplification rates of *A. lumbricoides* were significantly higher ($P < 0.0001$) for 10 and 20 mg of stored stools. Stools spread on Whatman paper grade 2 yielded the highest amplification rate of 100% for *A. lumbricoides*, *T. trichiura* and hookworm. PCR revealed STH infections in all the 128 spread stools carrying STH eggs. It also revealed *Necator americanus* and *Ancylostoma duodenale* respectively in 10 and 13 of 15 spread stools contained hookworm eggs. PCR confirmed the co-infections of these hookworm species as well as that of *A. lumbricoides* and *Trichuris trichiura* in 7 spread stools. Out of 40 stools without STH eggs, PCR revealed that 5 (12.5%) and 9 (22.5%) had respectively *A. lumbricoides* and *T. trichiura* infections. The amplification rate of each STH species was 100% from one to 8 weeks and decreased to 86.7% after 10 weeks of storage. This study highlighted the capacity of filter papers to store stools for the molecular detection of STHs. Storing stools on these papers will enable to monitor and evaluate control programs and ensure post-elimination surveillance.

Molecular variability of the *Ancylostoma secreted Protein-2 (Aca-asp-2)* gene from *Ancylostoma caninum* contributes to expand information on population genetic studies of hookworms.

Furtado LFV, de Miranda RRC, Tennesen JA, Blouin MS, Rabelo ÉML.

Oct-2023

Exp Parasitol.

<https://pubmed.ncbi.nlm.nih.gov/37544398/>

Hookworm infection is a major public health problem in many regions of the world. Given the high levels of host morbidity and even mortality of the host caused by these infections, it is crucial to understand the genetic structure of hookworm populations. This understanding can provide insights into the ecology, transmission patterns, mechanisms of drug resistance, and the development of vaccines and immunotherapeutic strategies. Previously, we examined presumably neutral molecular markers, such as microsatellites and COI (Cytochrome C oxidase subunit 1) in Brazilian populations of *Ancylostoma caninum*. Here we analyze the molecular variability of a genomic fragment of the *Aca-asp-2* (*Ancylostoma secreted protein-2*) gene from *Ancylostoma caninum*. This gene is a highly expressed and activated following the infection of the L3 larvae in the host. We obtained individuals of *A. caninum* from five different geographic locations in Brazil, sequenced and analyzed parts of the gene. The results revealed extensive polymorphism at this fragment, especially in the intronic region, indicating low selective pressure acting on these sequences. However, we also observed irregular distributions of nucleotides and

polymorphisms in the coding region of this gene, resulting in the identification of 27 alleles. The data presented here contribute to expanding the understanding of population genetic studies of hookworms.

Leishmaniose

Autophagy induced macrophages by α -alumina(α -AL₂O₃) conjugated cysteine peptidase, enhances the cytotoxic activity of CD8⁺ T lymphocytes against *Leishmania major*.

Beyzay F, Zavarán Hosseini A, Hazrati A, Karimi M, Soudi S.

2023

Bioimpacts.

<https://pubmed.ncbi.nlm.nih.gov/37736336/>

Dylight photodynamic therapy for cutaneous leishmaniasis in a pediatric setting: a case report and literature review.

Pomi FL, Peterle L, Vaccaro M, Borgia F.

19-09-2023

Photodiagnosis Photodyn Ther.

<https://pubmed.ncbi.nlm.nih.gov/37734562/>

Inhibitory effect of O-propargylawsone in A549 lung adenocarcinoma cells.

Dos Santos EWP, de Sousa RC, de Franca MNF, Santos JF, Ottoni FM, Isidório RG, de Lucca Junior W, Alves RJ, Scher R, Corrêa CB.

20-09-2023

BMC Complement Med Ther.

<https://pubmed.ncbi.nlm.nih.gov/37730601/>

First report of putative *Leishmania RNA virus 2 (LRV2)* in *Leishmania infantum* strains from canine and human visceral leishmaniasis cases in the southeast of Brazil.

Rêgo FD, da Silva ES, Lopes VV, Teixeira-Neto RG, Belo VS, Fonseca Júnior AA, Pereira DA, Pena HP, Laurenti MD, Araújo GV, da Matta VLR, Chouman IH, Burrin TB, Sandoval CM, Barrouin-Melo SM, de Pinho FA, de Andrade HM, Nunes RV, Gontijo CMF, Soccol VT, Kloczek D, Grybchuk D, Macedo DH, do Monte-Neto RL, Yurchenko V, Soares RP.

18-09-2023

Mem Inst Oswaldo Cruz.

<https://pubmed.ncbi.nlm.nih.gov/37729273/>

Disruption of the inositol phosphorylceramide synthase gene affects *Trypanosoma cruzi* differentiation and infection capacity.

Aprigio-Santos NS, Estevez-Castro CF, Macedo JP, Chame DF, Castro-Gomes T, Santos-Cardoso M, Burle-Caldas

GA, Covington CN, Steel PG, Smith TK, Denny PW, Teixeira SMR.

20-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37729272/>

Sphingolipids (SLs) are essential components of all eukaryotic cellular membranes. In fungi, plants and many protozoa, the primary SL is inositol-phosphorylceramide (IPC). *Trypanosoma cruzi* is a protozoan parasite that causes Chagas disease (CD), a chronic illness for which no vaccines or effective treatments are available. IPC synthase (IPCS) has been considered an ideal target enzyme for drug development because phosphoinositol-containing SL is absent in mammalian cells and the enzyme activity has been described in all parasite forms of *T. cruzi*. Furthermore, IPCS is an integral membrane protein conserved amongst other kinetoplastids, including *Leishmania major*, for which specific inhibitors have been identified. Using a CRISPR-Cas9 protocol, we generated *T. cruzi* knockout (KO) mutants in which both alleles of the IPCS gene were disrupted. We demonstrated that the lack of IPCS activity does not affect epimastigote proliferation or its susceptibility to compounds that have been identified as inhibitors of the *L. major* IPCS. However, disruption of the *T. cruzi* IPCS gene negatively affected epimastigote differentiation into metacyclic trypomastigotes as well as proliferation of intracellular amastigotes and differentiation of amastigotes into tissue culture-derived trypomastigotes. In accordance with previous studies suggesting that IPC is a membrane component essential for parasite survival in the mammalian host, we showed that *T. cruzi* IPCS null mutants are unable to establish an infection in vivo, even in immune deficient mice.

Phlebotomine sand flies (Diptera, Psychodidae) from Pha Tong cave, Northern Thailand with a description of two new species and taxonomical thoughts about *Phlebotomus stantoni*.

Renaux Torres MC, Pellot C, Somwang P, Khositharattanakool P, Vongphayloth K, Randrianambinintsoa FJ, Mathieu B, Siriyasatien P, Gay F, Depaquit J.

20-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37729218/>

Background: In South-East Asia, Thailand is the country with the highest number of human autochthonous cases of leishmaniasis mostly due to *Leishmania martiniquensis*. Their transmission remains unresolved to date even though sand flies are known vectors of leishmaniasis. As such, we focused a study on the sand fly fauna of a cave in Thailand to explore the biodiversity of potential *Leishmania* vectors. **Main results:** We carried out an inventory in Pha Tong cave. We caught and identified 570 Phlebotomine sand flies (452 females and 118 males) and identified 14 species belonging to the genera *Phlebotomus*, *Idiophlebotomus*, *Chinius*, *Sergentomyia* and *Grassomyia*. Among these 14 species, two could not be related to known sand fly species. Herein, we propose the description of two new sand fly species, previously

unknown to science. The first new species, *Phlebotomus shadenae* n. sp. is a sand fly of the subgenus *Anaphlebotomus*. It is morphologically close to *Ph. stantoni*, a species widely distributed throughout Southeast Asia. However, it differs by the length of the genital filaments in males or by the length of the ducts of the spermathecae in females as well as the high divergence of cytochrome b sequences. Additionally, we revised the systematics of the subgenus *Anaphlebotomus* and reinstated, by examination of its holotype, the validity of *Ph. maynei*, an Indian wrongly considered as a synonym of *Ph. stantoni* in the past. The second new species, *Sergentomyia maiae* n. sp., differs from a species in the same group, *Se. barraudi*, by an original cibarial double row of vertical teeth as well as by molecular data.

Conclusions: We propose the description of two new sand fly species for Science with morphological and molecular evidence. *Ph. shadenae* n. sp. was also found to be distributed in the south of Thailand and in Laos. Future studies need to determine whether these two species can play a role as vectors of *Leishmania* parasites, *Trypanosomatids* or *Phlebovirus*. Most of the species caught in the present study are strictly cavernicolous except *Grassomyia* sp. and a few *Sergentomyia*.

Synthesis and Biophysical and Biological Studies of N-Phenylbenzamide Derivatives Targeting Kinetoplastid Parasites.

Nué-Martínez JJ, Cisneros D, Moreno-Blázquez MDV, Fonseca-Berzal C, Manzano JI, Kraeutler D, Ungogo MA, Aloraini MA, Elati HAA, Ibáñez-Escribano A, Lagartera L, Herraiz T, Gamarro F, de Koning HP, Gómez-Barrio A, Dardonville C.

20-09-2023

J Med Chem.

<https://pubmed.ncbi.nlm.nih.gov/37729094/>

Importance of aspartate 4 in the Mg²⁺ dependent regulation of *Leishmania major* PAS domain-containing phosphoglycerate kinase.

Chowdhury G, Biswas S, Dholey Y, Panja P, Das S, Adak S.

17-09-2023

Biochim Biophys Acta Proteins Proteom.

<https://pubmed.ncbi.nlm.nih.gov/37726028/>

Magnesium is an important divalent cation for the regulation of catalytic activity. Recently, we have described that the Mg²⁺ binding through the PAS domain inhibits the phosphoglycerate kinase (PGK) activity in PAS domain-containing PGK from *Leishmania major* (LmPAS-PGK) at neutral pH 7.5, but PGK activity is derepressed at acidic pH 5.5. The acidic residue within the PAS domain of LmPAS-PGK is expected to bind the cofactor Mg²⁺ ion at neutral pH, but which specific acidic residue(s) is/are responsible for the Mg²⁺ binding is still unknown. To identify the residues, we exploited mutational studies of all acidic (twelve Asp/Glu) residues in the PAS domain for plausible Mg²⁺ binding. Mg²⁺ ion-dependent repression at pH 7.5 is withdrawn by substitution of Asp-4 with Ala,

whereas other acidic residue mutants (D16A, D22A, D24A, D29A, D43A, D44A, D60A, D63A, D77A, D87A, and E107A) showed similar features compared to the wild-type protein. Fluorescence spectroscopic studies and isothermal titration calorimetry analysis showed that the Asp-4 is crucial for Mg²⁺ binding in the absence of both PGK's substrates. These results suggest that Asp-4 residue in the regulatory (PAS) domain of wild type enzymes is required for Mg²⁺ dependent repressed state of the catalytic PGK domain at neutral pH.

Therapeutic potential of rWnt5A in curbing *Leishmania donovani* infection.

Maity S, Sengupta S, Sen M.

19-09-2023

Infect Immun.

<https://pubmed.ncbi.nlm.nih.gov/37725061/>

Global Bibliometric Analysis of Leishmaniasis Literature for the Last 20 Years and Investigating the Contribution of Türkiye.

Alkan S, Evlice O, Şahinoğlu MS.

18-09-2023

Türkiye Parazitol Derg.

<https://pubmed.ncbi.nlm.nih.gov/37724362/>

Objective: Leishmaniasis is a global health problem seen in more than 98 countries. The aim of this study is to conduct a bibliometric analysis of worldwide scientific outputs related to leishmaniasis and to provide a perspective for researchers on this topic. It also aimed to investigate the contribution of Türkiye to the leishmaniasis literature.

Methods: This study was conducted using scientometric methodologies on leishmaniasis in the Web of Science database between 2003 and 2022. The visualizations were made with Vosviewer program. The most published institutions and organizations, countries, authors, trends in the number of publications and citations by year, H-indexes of the mostly publishing countries, the most popular keywords, scientific collaborations between countries, and many other bibliometric parameters were analyzed. **Results:** In the last 20 years, research on *Leishmania* has been conducted in 143 different countries/regions. Brazil is the leading country with 4.463 articles (29.071%). The United States of America, India, Iran, and Spain published more than 1.000 articles, followed by European countries (Spain, United Kingdom, France, Germany, and Italy).

Conclusion: The number of publications, especially in endemic areas, was found to be limited other than Brazil. Studies in this area should be supported to ensure the eradication of the disease.

Histological findings associated with treatment response in cutaneous leishmaniasis: a clinicopathological correlation study.

Riyal H, Samaranayake N, Amarathunga P, Munidasa D, Karunaweera ND.

Oct-2023

Int J Dermatol.

<https://pubmed.ncbi.nlm.nih.gov/37723978/>

Investigating the role of Sterol C24-Methyl transferase mutation on drug resistance in leishmaniasis and identifying potential inhibitors.

Khan H, Waqas M, Khurshid B, Ullah N, Khalid A, Abdalla AN, Alamri MA, Wadood A.

18-09-2023

J Biomol Struct Dyn.

<https://pubmed.ncbi.nlm.nih.gov/37723868/>

Leishmaniasis is a fatal disease caused by the *leishmania* parasite. For the survival of the *leishmania* parasite, Sterol C24-Methyl Transferase (SMT) is essential which is an enzyme of the ergosterol pathway. SMT protein mutation is responsible for Amphotericin-B drug resistance in Leishmania, which is the main treatment for visceral leishmaniasis. Amphotericin-B resistance is caused by three mutated residues V131I, V321I and F72C. The underlying mechanisms and structural changes in SMT enzymes responsible for resistance due to mutation are still not well understood. In the current study, the potential mechanism of resistance due to these mutations and the structure variation of wild and mutant SMT proteins were investigated through molecular dynamics simulations and molecular docking analysis. The results showed that AmB established strong bonding interaction with wild SMT as compare to mutants SMT. The binding energy calculation showed that binding energy of AmB with mutants SMT increases as compare to the wild SMT. Further structural based virtual screening was carried out to design potential inhibitors for the mutant SMT. On the basis of structural-based virtual screening four inhibitors (SANC01057, SANC00882, SANC00414, SANC01047) were computationally identified as potential mutant SMT (F72C) inhibitors. This work provides valuable information for improved management of drug resistant Leishmaniasis. Communicated by Ramaswamy H. Sarma.

An Atypical Course of Visceral Leishmaniasis After Kidney Transplantation: A Case Report From Iran.

Kardeh S, Masjedi F, Faezi-Marian S, Shamsaeefar A, Torabi Jahromi M, Pakfetrat M, Roozbeh J.

16-09-2023

Transplant Proc.

<https://pubmed.ncbi.nlm.nih.gov/37722929/>

Background: Organ transplantation can lead to human visceral leishmaniasis (VL) transmission in humans. This report aims to describe the possible complications related to an atypical course of VL after kidney transplantation.

Case presentation: A 61-year-old man who suffered end-stage renal failure received a deceased donor kidney transplant after 2 years of hemodialysis. Tacrolimus, mycophenolate mofetil, and prednisolone were used for immunosuppressive therapy, and renal function remained stable for 2.5 years. He was referred to our hospital because of fever and malaise. Physical and radiological examinations showed mild splenomegaly and cervical and

inguinal lymphadenopathy. Laboratory data showed bicytopenia, elevated C-reactive protein, serum creatinine, and non-nephrotic proteinuria. Bone marrow biopsy aspiration showed no abnormality. Polymerase chain reaction confirmed the diagnosis of *Leishmania infantum*. Anti-leishmanial therapy was initiated with liposomal amphotericin B for 2 weeks, and the patient became clinically stable. So far, there has been no evidence of clinical or biological relapse, and kidney function is stable. **Conclusions:** Considering that VL has become increasingly widespread in immunocompromised patients in endemic regions, especially in patients with transplants, it is crucial to screen and rule out VL as a cause of infection in these patients. The probability of this problem should be considered in every patient with a transplant in endemic and nonendemic areas. Furthermore, our study showed that through timely diagnosis using noninvasive methods and standard treatments, mortality caused by this disease can be properly prevented.

A Case of Visceral Leishmaniasis in a 4-Year-Old Child Living in Nonendemic Area Located in Suburbs of Dakar, Senegal.

Ndiaye M, Cissé DF, Djigal A, Sow A, Léo S, Ly F, Manga IA, Diouf MA, Sow D, Gaye O, Camara B, Faye B.

09-09-2023

Case Rep Infect Dis.

<https://pubmed.ncbi.nlm.nih.gov/37720340/>

Visceral leishmaniasis (VL) is an infectious disease caused by protozoa of the genus *Leishmania*. Sporadic cases are observed in nonendemic areas and often associated with limited foci; therefore, the disease is easily overlooked. In addition, other diseases have similar clinical symptoms, which make it difficult for clinicians to make an accurate diagnosis and to provide effective treatment. We identified visceral leishmaniasis in a 4-year-old child in Pikine, Senegal. The patient was admitted to the Pikine National Teaching Hospital for haemorrhagic, tumoral, and infectious syndromes. At admission, the patient presented with epistaxis and gingivorrhagia, a severe anaemic syndrome poorly tolerated, a systemic inflammatory response syndrome with fever at 39.5°C, a tumoral syndrome with 11 cm of hepatomegaly and 12 cm of type IV splenomegaly, and noninflammatory macropoly adenopathies. A spinal cord puncture was performed, and direct microscopy examination of the sample after GIEMSA staining revealed amastigote forms of *Leishmania*. The PCR amplification of extracted DNA from the bone marrow aspiration using specific primers for VL (forward and reverse) confirmed that VL was responsible for the infection. A treatment with meglumine antimoniate (Glucantime) was given and it gave a successful outcome with remission of clinical symptoms and favourable evolution with 3 months hindsight. **Conclusion.** This visceral leishmaniasis case diagnosis in Senegal has shown that, apart from haematological malignancies, this disease must be considered in combination with a tumor syndrome, haemorrhagic syndrome, and infectious syndrome.

Molecular identification of phlebotomine sand flies and the harbored *Leishmania* spp. in Sokoto State, Nigeria.

Usman M, Natale AJ, Jatau ID, Ogo NI, Jeelani G, Goto Y, Nozaki T, McKerrow JH, Balogun EO.

31-08-2023

Front Cell Infect Microbiol.

<https://pubmed.ncbi.nlm.nih.gov/37719668/>

Comparative analysis of the severity and progression of cutaneous leishmaniasis caused by *Leishmania tropica* in untreated and glucantime-treated patients.

Naz S, Aroosh A, Raza N, Islam A, Fatima A, Ozbel Y, Toz S, Hayat O, Waseem S.

15-09-2023

Acta Trop.

<https://pubmed.ncbi.nlm.nih.gov/37717686/>

Epidemiological, serological, and entomological aspects of visceral leishmaniasis (VL) in suspected new VL foci in Bangladesh.

Ghosh D, Rashid MU, Sagar SK, Uddin MR, Maruf S, Ghosh P, Chowdhury R, Rahat MA, Islam MN, Aktaruzzaman MM, Sohel ANM, Banjara MR, Kroegeer A, Aseffa A, Mondal D.

14-09-2023

Acta Trop.

<https://pubmed.ncbi.nlm.nih.gov/37716668/>

The study aimed to explore epidemiological, serological, and entomological aspects of visceral leishmaniasis (VL) in suspected new VL foci and assess the knowledge, attitude, and practices of the community living in the alleged new VL foci. The study investigated new visceral leishmaniasis (VL) cases reported between 2019 and 2020 in four sub-districts (Dharmapasha, Hakimpur, Islampur and Savar) where we tested 560 members using the rK39 rapid test and conducted vector collections in six neighbouring houses of the index cases to assess sandfly density and distribution, examined sandflies' infection, and determined the spatial relationship with VL infection. Furthermore, we highlighted the importance of early detection, and community awareness in controlling the spread of the disease. The study screened 1078 people from 231 households in the four sub-districts for fever, history of visceral leishmaniasis (VL), and PKDL-like skin lesions. Among sub-districts, positivity rate for rK39 rapid test was highest (3.5 %) in Savar. Sandflies were present across all areas except in Dharmapasha, but all 21 collected female *P. argentipes* sandflies were negative for *Leishmania* parasite DNA. We found one person from Islampur with a history of VL, and one from Islampur and another one from Savar had PKDL. After the awareness intervention, more people became familiar with VL infection (91.2 %), and their knowledge concerning sandflies being the vector of the disease and the risk of having VL increased significantly (30.1 %). The study found no active case in the suspected new foci, but some

asymptomatic individuals were present. As sandfly vectors exist in these areas, the National Kala-azar Elimination Programme (NKEP) should consider these areas as kala-azar endemic and initiate control activities as per national guidelines.

High climatic ancestral affinity between the lineages of the Leishmania vector Psathyromyia shannoni sensu stricto (Diptera: Phlebotominae).

Moo-Llanes DA, Montes de Oca-Aguilar AC.

15-09-2023

Med Vet Entomol.

<https://pubmed.ncbi.nlm.nih.gov/37715451/>

Psathyromyia (*Psathyromyia*) *shannoni sensu stricto* (Dyar) is a vector of *Leishmania* parasite and the second sandfly of medical importance with a wide geographical but discontinuous distribution in America. Preliminary genetic structure analysis using a mitochondrial marker shows that the species integrated by at least four lineages could be the result of ecological adaptations to different environmental scenarios, but this hypothesis had never been proven. The aim of the present study was to analyse whether the genetic structure that detected *Pa. shannoni* ss. is associated with divergence or conservatism niche. Using Ecological Niche Models (ENMs) theory, we estimated the potential distribution for each genetic lineage, and then, we evaluated the equivalency niche for assessing whether climatic niche was more different than expected. The ENMs identify different suitable distribution areas but the same climatic or ecological conditions for the genetic lineages of *Pa. shannoni* (conservatism niche). Our findings allow us to speculate that other potential processes or events could be related to the genetic differentiation of *Pa. shannoni*. These studies are important because they allow us to identify the factors that could restrict the potential distribution of the different lineages whose vectorial competence is still unknown.

Letter to the editor.

Sood V, Singhai M.

13-09-2023

Indian J Med Microbiol.

<https://pubmed.ncbi.nlm.nih.gov/37713778/>

Strasseriolides display in vitro and in vivo activity against trypanosomal parasites and cause morphological and size defects in Trypanosoma cruzi.

Bosch-Navarrete C, Pérez-Moreno G, Annang F, Diaz-Gonzalez R, García-Hernández R, Rocha H, Gamarro F, Córdón-Obras C, Navarro M, Rodríguez A, Genilloud O, Reyes F, Vicente F, Ruiz-Pérez LM, González-Pacanowska D.

15-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37713416/>

Neglected diseases caused by kinetoplastid parasites are a health burden in tropical and subtropical countries. The

need to create safe and effective medicines to improve treatment remains a priority. Microbial natural products are a source of chemical diversity that provides a valuable approach for identifying new drug candidates. We recently reported the discovery and bioassay-guided isolation of a novel family of macrolides with antiplasmodial activity. The novel family of four potent antimalarial macrolides, strasseriolides A-D, was isolated from cultures of *Strasseria geniculata* CF-247251, a fungal strain obtained from plant tissues. In the present study, we analyze these strasseriolides for activity against kinetoplastid protozoan parasites, namely, *Trypanosoma brucei brucei*, *Leishmania donovani* and *Trypanosoma cruzi*. Compounds exhibited mostly low activities against *T. b. brucei*, yet notable growth inhibition and selectivity were observed for strasseriolides C and D in the clinically relevant intracellular *T. cruzi* and *L. donovani* amastigotes with EC50 values in the low micromolar range. Compound C is fast-acting and active against both intracellular and trypomastigote forms of *T. cruzi*. While cell cycle defects were not identified, prominent morphological changes were visualized by differential interference contrast microscopy and smaller and rounded parasites were visualized upon exposure to strasseriolide C. Moreover, compound C lowers parasitaemia in vivo in acute models of infection of Chagas disease. Hence, strasseriolide C is a novel natural product active against different forms of *T. cruzi* in vitro and in vivo. The study provides an avenue for blocking infection of new cells, a strategy that could additionally contribute to avoid treatment failure.

New insights in photodynamic inactivation of Leishmania amazonensis: A focus on lipidomics and resistance.

Cabral FV, Cerone M, Persheyev S, Lian C, Samuel IDW, Ribeiro MS, Smith TK.

15-09-2023

PLoS One.

<https://pubmed.ncbi.nlm.nih.gov/37713373/>

The emergence of drug resistance in cutaneous leishmaniasis (CL) has become a major problem over the past decades. The spread of resistant phenotypes has been attributed to the wide misuse of current antileishmanial chemotherapy, which is a serious threat to global health. Photodynamic therapy (PDT) has been shown to be effective against a wide spectrum of drug-resistant pathogens. Due to its multi-target approach and immediate effects, it may be an attractive strategy for treatment of drug-resistant *Leishmania* species. In this study, we sought to evaluate the activity of PDT in vitro using the photosensitizer 1,9-dimethyl methylene blue (DMMB), against promastigotes of two *Leishmania amazonensis* strains: the wild-type (WT) and a lab induced miltefosine-resistant (MFR) strain. The underlying mechanisms of DMMB-PDT action upon the parasites was focused on the changes in the lipid metabolism of both strains, which was conducted by a quantitative lipidomics analysis. We also assessed the production of ROS, mitochondrial labeling and lipid droplets accumulation after DMMB-PDT. Our results show that DMMB-PDT produced high levels of ROS, promoting mitochondrial membrane depolarization due to the loss of membrane

potential. In addition, both untreated strains revealed some differences in the lipid content, in which MFR parasites showed increased levels of phosphatidylcholine, hence suggesting this could also be related to their mechanism of resistance to miltefosine. Moreover, the oxidative stress and consequent lipid peroxidation led to significant phospholipid alterations, thereby resulting in cellular dysfunction and parasite death. Thus, our results demonstrated that DMMB-mediated PDT is effective to kill *L. amazonensis* MFR strain and should be further studied as a potential strategy to overcome antileishmanial drug resistance.

Analysis of a Novel Peptide That Is Capable of Inhibiting the Enzymatic Activity of the Protein Kinase A Catalytic Subunit-Like Protein from *Trypanosoma equiperdum*.

Araujo NA, Bubis J.

15-09-2023

Protein J.

<https://pubmed.ncbi.nlm.nih.gov/37713008/>

Comparison of collection methods for *Phlebotomus argentipes* sand flies to use in a molecular xenomonitoring system for the surveillance of visceral leishmaniasis.

McIntyre-Nolan S, Kumar V, Mark-Carew M, Kumar K, Nightingale ES, Dalla Libera Marchiori G, Rogers ME, Kristan M, Campino S, Medley GF, Das P, Cameron MM.

01-09-2032

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37656745/>

***Leishmania* LPG interacts with LRR5/LRR6 of macrophage TLR4 for parasite invasion and impairs the macrophage functions.**

Mazumder S, Sinha A, Ghosh S, Sharma GC, Prusty BM, Manna D, Pal D, Pal C, Dasgupta S.

17-01-2023

Pathog Dis.

<https://pubmed.ncbi.nlm.nih.gov/37604789/>

Visceral leishmaniasis (VL) is a severe form of leishmaniasis, primarily affecting the poor in developing countries. Although several studies have highlighted the importance of toll-like receptors (TLRs) in the pathophysiology of leishmaniasis, the role of specific TLRs and their binding partners involved in *Leishmania donovani* uptake are still elusive. To investigate the mechanism of *L. donovani* entry inside the macrophages, we found that the parasite lipophosphoglycan (LPG) interacted with the macrophage TLR4, leading to parasite uptake without any significant alteration of macrophage cell viability. Increased parasite numbers within macrophages markedly inhibited lipopolysaccharide-induced pro-inflammatory cytokines gene expression. Silencing of macrophage-TLR4, or inhibition of parasite-LPG, significantly stemmed parasite infection in

macrophages. Interestingly, we observed a significant enhancement of macrophage migration, and generation of reactive oxygen species (ROS) in the parasite-infected TLR4-silenced macrophages, whereas parasite infection in TLR4-overexpressed macrophages exhibited a notable reduction of macrophage migration and ROS generation. Moreover, mutations in the leucine-rich repeats (LRRs), particularly LRR5 and LRR6, significantly prevented TLR4 interaction with LPG, thus inhibiting cellular parasite entry. All these results suggest that parasite LPG recognition by the LRR5 and LRR6 of macrophage-TLR4 facilitated parasite entry, and impaired macrophage functions. Therefore, targeting LRR5/LRR6 interactions with LPG could provide a novel option to prevent VL.

***Oliveria decumbens* Vent. (Apiaceae): Biological screening and chemical compositions.**

Mirahmad A, Hafez Ghoran S, Alipour P, Taktaz F, Hassan S, Naderian M, Moradalipour A, Faizi M, Kobarfard F, Ayatollahi SA.

10-01-2023

J Ethnopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37595813/>

Design, synthesis and antitrypanosomatid activity of 2-nitroimidazole-3,5-disubstituted isoxazole compounds based on benzimidazole.

Carvalho DB, Costa PAN, Portapilla GB, das Neves AR, Shigemoto CYK, Pelizaro BI, Silva F, Piranda EM, Arruda CCP, Gaspari PDM, Cardoso IA, Luccas PH, Nonato MC, Lopes NP, de Albuquerque S, Baroni ACM.

15-11-2023

Eur J Med Chem.

<https://pubmed.ncbi.nlm.nih.gov/37573209/>

Chagas disease and leishmaniasis are neglected diseases of high priority as a public health problem. Pharmacotherapy is based on the administration of a few drugs, which exhibit hazardous adverse effects and toxicity to the patients. Thus, the search for new antitrypanosomatid drugs is imperative to overcome the limitations of the treatments. In this work, 46 2-nitroimidazole 3,5-disubstituted isoxazole compounds were synthesized in good yields by [3 + 2] cycloaddition reaction between terminal acetylene (propargyl-2-nitroimidazole) and chloro-oximes. The compounds were non-toxic to LLC-MK2 cells. Compounds 30, 35, and 44 showed in vitro antichagasic activity, 15-fold, 12-fold, and 10-fold, respectively, more active than benzimidazole (BZN). Compounds 30, 35, 44, 45, 53, and 61 acted as substrates for the TcNTR enzyme, indicating that this might be one of the mechanisms of action involved in their antiparasitic activity. Piperazine series and 4-monosubstituted compounds were potent against *T. cruzi* parasites. Besides the in vitro activity observed in compound 45, the in vivo assay showed that the compound only reduced the parasitemia levels by the seventh-day post-infection (77%, $p > 0.001$) compared to the control group. However, 45 significantly reduced the

parasite load in cardiac tissue ($p < 0.01$) 11 days post-infection. Compounds 49, 52, and 54 showed antileishmanial activity against intracellular amastigotes of *Leishmania (L.) amazonensis* at the same range as amphotericin B. These findings highlight the antitrypanosomatid properties of 2-nitroimidazole 3,5-disubstituted isoxazole compounds and the possibility in using them as antitrypanosomatid agents in further studies.

Novel chemical scaffold as potential drug against *Leishmania donovani*: Integrated computational and experimental approaches.

Ranjan P, Dubey VK.

Sept-2023

J Cell Biochem.

<https://pubmed.ncbi.nlm.nih.gov/37566640/>

In this study, we have screened a large number of Food and Drug Administration-approved compounds for novel anti-leishmanial molecules targeting the citrate synthase enzyme of the parasite. Based on their docking and molecular dynamic simulation statistics, five compounds were selected. These compounds followed Lipinski's rule of five. Additionally, in vitro, antileishmanial and cytotoxicity studies were performed. The three compounds, Abemaciclib, Bazedoxifene, and Vorapaxar, had shown effective anti-leishmanial activities with IC_{50} values of 0.92 ± 0.02 , 0.65 ± 0.09 , and 6.1 ± 0.91 against *Leishmania donovani* promastigote and with EC_{50} values of 1.52 ± 0.37 , 2.11 ± 0.38 , 10.4 ± 1.27 against intramacrophagic amastigote without significantly harming macrophage cells. Among them, from in silico and antileishmanial activities studies, Abemaciclib had been selected based on their less binding energy, good antileishmanial activities, and also a significant difference in their binding energy with human citrate synthase for cell death mechanistic studies using flow cytometry and a DNA fragmentation assay. The action of this compound resulted in an increased reactive oxygen species production, depolarization of mitochondrial membrane potential, DNA damage, and an increase in the sub-G1 cell population. These properties are the hallmarks of apoptosis which were further confirmed by apoptotic assay. Based on the above result, this anticancer compound Abemaciclib could be employed as a potential treatment option for leishmaniasis after further confirmation.

Antileishmanial activity of 2-amino-thiophene derivative SB-200.

Sousa JPA, Sousa JMS, Rodrigues RRL, Nunes TAL, Machado YAA, Araujo AC, da Silva IGM, Barros-Cordeiro KB, Bão SN, Alves MMM, Mendonça-Junior FJB, Rodrigues KADF.

Oct-2023

Int Immunopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37536181/>

Leishmaniasis, presenting the highest number of cases worldwide is one of the most serious Neglected Tropical Diseases (NTDs). Clinical manifestations are intrinsically

related to the host's immune response making immunomodulatory substances the target of numerous studies on antileishmanial activity. The currently available drugs used for treatment present various problems including high toxicity, low efficacy, and associated drug resistance. The search for therapeutic alternatives is urgent, and in this context, thiophene derivatives appear to be a promising therapeutic alternative (many have shown promising anti-leishmanial activity). The objective of this study was to investigate the antileishmanial activity of the 2-amino-thiophenic derivative SB-200. The thiophenic derivative was effective in inhibiting the growth of *Leishmania braziliensis*, *Leishmania major*, and *Leishmania infantum* promastigotes, obtaining respective IC_{50} values of $4.25 \mu M$, $4.65 \mu M$, and $3.96 \mu M$. For *L. infantum*, it was demonstrated that the antipromastigote effect of SB-200 is associated with cell membrane integrity losses, and with morphological changes observed during scanning and transmission electron microscopy. Cytotoxicity was performed for J774.A1 macrophages and VERO cells, to obtain a CC_{50} of $42.52 \mu M$ and a SI of 10.74 for macrophages and a CC_{50} of $39.2 \mu M$ and an SI of 9.89 for VERO cells. The anti-amastigote activity of SB-200 revealed an IC_{50} of $2.85 \mu M$ and an SI of 14.97 against macrophages and SI of 13.8 for VERO cells. The anti-amastigote activity of SB-200 is associated with in vitro immunomodulation. For acute toxicity, SB-200 against *Zophobas morio* larvae permitted 100% survival. We conclude that the 2-amino-thiophenic derivative SB-200 is a promising candidate for in vivo anti-leishmania drug tests to evaluate its activity, efficacy, and safety.

4',7-dihydroxyflavone conjugated carbon nanotube formulation demonstrates improved efficacy against *Leishmania* parasite.

Sasidharan S, Saudagar P.

Oct-2023

Biochim Biophys Acta Gen Subj.

<https://pubmed.ncbi.nlm.nih.gov/37463617/>

Serological survey of *Leishmania infantum* in apparently healthy dogs in different areas of Spain.

Baxarias M, Mateu C, Miró G, Solano-Gallego L.

Sept-2023

Vet Med Sci.

<https://pubmed.ncbi.nlm.nih.gov/37438910/>

C-reactive protein binds to short phosphoglycan repeats of *Leishmania* secreted proteophosphoglycans and activates complement.

Seow ES, Doran EC, Schroeder JH, Rogers ME, Raynes JG.

31-08-2023

Front Immunol.

<https://pubmed.ncbi.nlm.nih.gov/37720216/>

Human C-reactive protein (CRP) binds to lipophosphoglycan (LPG), a virulence factor of *Leishmania* spp., through the repeating phosphodisaccharide region. We report here that both major components of

promastigote secretory gel (PSG), the filamentous proteophosphoglycan (fPPG) and the secreted acid phosphatase (ScAP), are also ligands. CRP binding was mainly associated with the flagellar pocket when LPG deficient *Leishmania mexicana* parasites were examined by fluorescent microscopy, consistent with binding to secreted material. ScAP is a major ligand in purified fPPG from parasite culture as demonstrated by much reduced binding to a ScAP deficient mutant fPPG in plate binding assays and ligand blotting. Nevertheless, in sandfly derived PSG fPPG is a major component and the major CRP binding component. Previously we showed high avidity of CRP for LPG ligand required multiple disaccharide repeats. ScAP and fPPG only have short repeats but they retain high avidity for CRP revealed by surface plasmon resonance because they are found in multiple copies on the phosphoglycan. The fPPG from many species such as *L. donovani* and *L. mexicana* bound CRP strongly but *L. tropica* and *L. amazonensis* had low amounts of binding. The extent of side chain substitution of [-PO₄-6Galβ1-4Manα1-] disaccharides correlates inversely with binding of CRP. The ligand for the CRP on different species all had similar binding avidity as the half maximal binding concentration was similar. Since the PSG is injected with the parasites into host blood pools and phosphoglycans (PG) are known to deplete complement, we showed that CRP makes a significant contribution to the activation of complement by PSG using serum from naive donors.

Evolving immunometabolic response to the early *Leishmania infantum* infection in the spleen of BALB/c mice described by gene expression profiling.

Palacios G, Diaz-Solano R, Valladares B, Dorta-Guerra R, Carmelo E.

Nov-2023

Acta Trop.

<https://pubmed.ncbi.nlm.nih.gov/37619900/>

Transcriptional analysis is a useful approximation towards the identification of global changes in host-pathogen interaction, in order to elucidate tissue-specific immune responses that drive the immunopathology of the disease. For this purpose, expression of 223 genes involved in innate and adaptive immune response, lipid metabolism, prostaglandin synthesis, C-type lectin receptors and MAPK signaling pathway, among other processes, were analyzed during the early infection in spleens of BALB/c mice infected by *Leishmania infantum*. Our results highlight the activation of immune responses in spleen tissue as early as 1 day p.i., but a mixed pro-inflammatory and regulatory response at day 10 p.i., failing to induce an effective response towards control of *Leishmania* infection in the spleen. This ineffective response is coupled to downregulation of metabolic markers relevant for pathways related to eicosanoid biosynthesis, adipocytokine signaling or HIF-1 signaling, among others. Interestingly, the over-representation of processes related to immune response, revealed IL21 as a potential early biomarker of *L. infantum* infection in the spleen. These results provide insights into the relationships between immune and metabolic responses at transcriptional level during the first days of infection in the *L. infantum*-BALB/c

experimental model, revealing the deregulation of many important pathways and processes crucial for parasitic control in infected tissues.

Lèpre

Improving TB control: efficiencies of case-finding interventions in Nigeria.

Babayi AP, Odume BB, Ogbudebe CL, Chukwuogo O, Nwokoye N, Dim CC, Useni S, Nongo D, Eneogu R, Chijioke-Akaniro O, Anyaie C.

21-09-2023

Public Health Action.

<https://pubmed.ncbi.nlm.nih.gov/37736578/>

Rare Neurologic Presentation of Thyrotoxicosis.

Alachew K, Tsegaye K.

20-06-2023

AACE Clin Case Rep.

<https://pubmed.ncbi.nlm.nih.gov/37736315/>

Efficacy and safety of an inactivated virus-particle vaccine for SARS-CoV-2, BIV1-CovIran: randomised, placebo controlled, double blind, multicentre, phase 3 clinical trial.

Mohraz M, Vahdat K, Ghamari SH, Abbasi-Kangevari M, Ghasemi E, Ghabdian Y, Rezaei N, Pouya MA, Abdoli A, Malekpour MR, Koohgir K, Saeedi Moghaddam S, Tabarsi P, Moghadami M, Khorvash F, Khodashahi R, Salehi M, Hosseini H.

21-09-2023

BMJ.

<https://pubmed.ncbi.nlm.nih.gov/37734752/>

Objective: To report the efficacy, safety, and exploratory immunogenicity findings of two 5 µg doses of the BIV1-CovIran vaccine. **Design:** Randomised, placebo controlled, double blind, multicentre, phase 3 clinical trial. **Setting:** In six cities of Iran, including Bushehr, Isfahan, Karaj, Mashhad, Shiraz, and Tehran. The first vaccine or placebo injection of the first participant was on 16 May 2021 in Tehran. The last vaccine or placebo injection of the last participant occurred on 15 July 2021 in Isfahan. **Participants:** 20 000 participants aged 18-75 years were randomly assigned to the intervention or placebo groups with a ratio of 2:1. **Intervention:** 5 µg vaccine or placebo with the interval of 28 days. **Main outcome measures:** Vaccine efficacy for a 90 day follow-up period, safety and explanatory immunogenicity assessment, and variant detection during the trial. **Results:** 20 000 participants were recruited and randomly assigned to receive BIV1-CovIran (n=13 335 (66.7%)) or placebo (n=6665 (33.3%)). Participants' mean age was 38.3 (standard deviation 11.2) years, and 6913 (34.6%) were female. Among vaccinated participants that had covid-19 reported during the follow-up (median 83 days), 758 (5.9%) had symptoms, 144 (1.1%) had severe infection, and seven (0.1%) were critical. Among participants who received placebo during the

follow-up, 688 (10.7%) had symptoms, 221 (3.4%) had severe infection, and 19 (0.3%) were critical. Overall efficacy was 50.2% (95% confidence interval 44.7% to 55.0%) against symptomatic covid-19, 70.5% (63.7% to 76.1%) against severe disease, and 83.1% (61.2% to 93.5%) against critical cases. Two deaths were reported in the efficacy population in the placebo group, no deaths were from the intervention group. During follow-up, 41 922 adverse events were reported: 28 782 (68.7%) were adverse reactions, of which 19 363 (67.3%) were in the intervention group. Most adverse reactions were mild or moderate in severity (grade 1 or 2) and self-limiting. No serious adverse events were related to the injections. For variant investigation, of 119 participants positive for the SARS-CoV-2 variant, 106 (89.1%) were positive for the delta variant.

Conclusions: A two dose regimen of the BIV1-CovIran vaccine conferred efficacy of 50.2% against symptomatic covid-19, 70.5% against severe disease, and 83.1% against critical disease. Vaccination was well tolerated, with no safety concerns raised.

Trial registration: Iranian Registry of Clinical Trials, IRCT20201202049567N3.

Leprosy prevalence spatial distribution and trend in a health region in Northeast Brazil, 2008-2017: an ecological study.

Oliveira RA, Sousa PMP, Silva JCD, Santos LFS, Santos FS, Pascoal LM, Costa ACPI, Santos LHD, Santos Neto M.

18-09-2023

Epidemiol Serv Saude.

<https://pubmed.ncbi.nlm.nih.gov/37729265/>

Clinical-epidemiological characteristics and temporal trend of new cases of grade 2 disability leprosy in the state of Maranhão, Brazil, 2011- 2020.

Moreira RJO, Bezerra JM, Santos FS, Pascoal LM, Santos LHD, Santos Neto M.

18-09-2023

Epidemiol Serv Saude.

<https://pubmed.ncbi.nlm.nih.gov/37729263/>

Main results: Out of 2,147 grade 2 disability leprosy cases, the majority were male, of mixed race/skin color, multibacillary and borderline. The São Luís regional health unit showed a falling trend. **Implications for services:** The results can guide strategies for the leprosy control program in the state, aiming at new approaches towards early diagnosis, treatment and prevention of disabilities.

Perspectives: Further studies are needed, such as spatial distribution of cases and detection rates of leprosy in children under 15 years of age, in order to gain a better understanding of the epidemiological profile of leprosy in Maranhão. **Objective:** to describe the clinical and epidemiological characteristics of new cases of grade 2 disability leprosy and to analyze its trend in the state of Maranhão, from 2011 to 2020. **Methods:** this was a descriptive cross-sectional and ecological time-series study, using data from the Notifiable Health Conditions Information System. A descriptive analysis of the event was carried out according to the sociodemographic and

clinical-laboratory characteristics of the cases. The temporal trend of event incidence was analyzed using Prais-Winsten regression. **Results:** of the 2,147 cases, 71.5% were male, 48.9% had up to 8 years of schooling, 66.5% were of mixed race/color, 95.5% had the multibacillary form, 58.8% were borderline, 32.3% had negative bacilloscopy at diagnosis. There was a stationary trend in the state and a falling trend in the São Luís Health Region (annual percentage change = -64.4%; 95% confidence interval: -73.7;-51.9). **Conclusion:** incidence trend was stable in the state of Maranhão and falling in São Luís.

Multiple Firm Swellings in a Middle-Aged Woman.

Adya KA, Inamadar AC.

25-05-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727571/>

Mucocutaneous Findings in Hematolymphoid Neoplasms: An Observational Study.

Batra A, Hazarika N, Nath UK.

29-08-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727568/>

Background: Cutaneous manifestations of hematological neoplasms can be divided into three broad categories - direct infiltration, paraneoplastic conditions, and those due to the treatment of hematological cancers. **Objectives:** To study the frequency and patterns of mucocutaneous manifestations in patients with hematolymphoid neoplasms and those due to chemotherapy. **Materials and methods:** This was an observational study done with 172 patients. Categorization of mucocutaneous manifestations was done into malignancy-associated and chemotherapeutic drugs-associated and data was analyzed. **Results:** Out of a total of 172 patients, 15.6% (27/172) had malignancy-related mucocutaneous manifestations. Among these, 4.6% (8/172) had direct infiltration of malignant cells into the skin and 11% (19/172) had paraneoplastic manifestations. The most common chemotherapy-related mucocutaneous manifestations were nail changes - 47.1% (81/172), of which transverse melanonychia was the most common (20.9%). About 44.2% (76/172) had a cutaneous infection, the commonest of which was a fungal infection (15.1%). Chemotherapy-induced alopecia was noted in 46.5% (80/172) and found to be significantly associated with cytarabine, daunorubicin, doxorubicin, methotrexate, and vincristine. Cutaneous hyperpigmentation was found to be significantly associated with cytarabine, doxorubicin, and vincristine.

Conclusion: Mucocutaneous manifestations cause additional discomfort to a patient undergoing chemotherapy. Early recognition and timely and appropriate management facilitate symptom control and prevent treatment-related morbidity. A multidisciplinary approach involving hemato-oncologists and

dermatologists can help achieve this target. Solitary Skin Colored Facial Nodule.

Adya KA, Inamadar AC.

25-05-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727565/>

Genotype Study of Filaggrin Gene Loss-of-Function Mutations in Central India Population with Atopic Dermatitis and Ichthyosis Vulgaris.

Chawla HS, Kosta S, Namdeo C, Kataria R, Bhatia K, Sahu R, Joshi P.

29-08-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727564/>

Background: A genotype study of filaggrin gene loss-of-function mutations in central India can provide valuable insights into the prevalence and association of these mutations with atopic dermatitis (AD) and ichthyosis vulgaris (IV) in the region. The *FLG* R501X and 2282del4 are both genetic variants in the human gene called filaggrin gene (*FLG*), which encodes a protein that plays an important role in the formation and maintenance of the skin barrier. In this study, we determined the *FLG* R501X and 2282del4 variants association with both AD and IV in Central Indian populations. **Materials and methods:** This case-control study was conducted in the Departments of Dermatology and Molecular and Virology Research and Diagnostic Laboratory at Sri Aurobindo Medical College and Post Graduate Institute, Indore (Madhya Pradesh). The study was approved by the Clinical Research and Ethics Committee. A total of 180 patients aged between 3 months - 60 years who attended the skin outpatient department between March-2021 to June-2022 were recruited in this study. Among them, 60 patients were in AD-group, 60 patients in IV-group, and 60 patients were in the healthy control group. Polymerase chain reaction followed by restriction fragment length polymorphism (PCR-RFLP) was used in genotyping for *FLG* mutations (R501X and 2282del4). **Results:** The most common *FLG* mutations were R501X (31.6% and 23.3%) and 2282del4 (18.3% and 13.3%) in AD and IV patients with heterozygous (AT) genotype, respectively. The combined mutation (*FLG* R501X and 2282del4) association was 10% and 5% in the AD and IV groups with heterozygous (AT) genotype, respectively, and in all the patients of control group with wild genotype (AA). There were no significant ($P = 0.09$) associations found with 2282del4 genotype. **Conclusion:** The R501X mutation in the gene encoding filaggrin is one of the robust genetic associations of AD and IV. The 2282del4 polymorphism was marginally less as compared to R501X.

Ibrutinib-Associated Multifocal Paronychia with Periungual Pyogenic Granulomas Involving Concomitant Finger and Toe Nails.

Kaur L, Dayal S, Singh J, Gowda VVM.

25-05-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727563/>

Impact of COVID-19 Pandemic on Dermatology Teaching Program in India: A Survey on the Faculty and Residents' Perspective.

Sil A, Das A, Patra AC, Kumar R, Pandhi D, De D, Seetharam K, Bhari N, Gupta N, Rao R, Mittal A, Rathore S, Poojary S, Barua S, Jagadeesan S, Mohanty S, Padhi T, Sankar V, Betkerur J, Das NK.

29-08-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727561/>

Strategic Development Plan for the Indian Association of Dermatologists, Venereologists and Leprologists (IADVL): Consolidating Five Decades of Experience and Moving Forward on a Global Platform.

Sarkar R, Sinha S, Sachdeva S, Dogra S, Karajagi N, Devaraj DK, Jindal R, Malhotra A.

15-08-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727559/>

Bathing Practices in Dermatology: Uses and Implications for Patient Management.

Chakraborty A.

10-08-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727546/>

Delineating the Boundaries of Superficial Lymphangitis: A Retrospective Study of 11 Cases with a Review of Literature.

Sharma RK, Sood S, Sharma D.

29-08-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727545/>

Background: Lymphangitis is an inflammation of lymphatic channels caused by infectious or non-infectious agents, presenting with characteristic linear erythematous streaks draining toward regional lymph nodes. **Objective:** To describe the clinical characteristics and etiological factors involved in acute superficial lymphangitis in a retrospective descriptive study. **Materials and Methods:** Records of patients were analyzed retrospectively who presented with linear erythematous streaks, diagnosed as superficial lymphangitis, in the outpatient department of dermatology during the last 5 years (January 2018-December 2022) in a tertiary care hospital. Patients were evaluated for their demographic profile, detailed history, complete physical examination, and standard blood tests (if necessary). **Results:** A total of 11 patients were found, out of which 7 (63%) were males and 4 (37%) were females. The mean/median age of these patients was 30 years (range 9-52 years). The minimum duration of

development of lymphangitis was within minutes in the case of a mosquito bite reaction and around 72 hours in the case of trauma or infection induced, with a median interval of 48 hours. The site most commonly involved was the upper extremity in 8 (72%) patients, followed by the trunk in 2 (18%) and the lower extremity in 1 (9%). Arthropod bite reactions (63%) were the most common etiological agent. All patients presented with linear erythematous streaks extending towards draining lymph nodes. **Conclusion:** Lymphangitis is often considered to be a bacterial infection and is mostly treated with antibiotics; however, non-bacterial and non-infectious causes should be kept in mind while treating superficial lymphangitis to make judicious use of systemic antibiotics.

An Unusual Presentation of Systemic B-Cell Lymphoma.

Joseph S, D'Souza MJ, Bhat RM, Fernandes MS.

10-07-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727542/>

Lyme Disease: An Overview.

Mahajan VK.

23-02-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727539/>

Moving Forward with an Impact Factor.

Seetharam KA.

29-08-2023

Indian Dermatol Online J.

<https://pubmed.ncbi.nlm.nih.gov/37727537/>

Analysis of socioeconomic condition and bacillary index with respect to the development of Hansen's disease.

Gautam S, Sharma D, Singh S, Arora M, Goel A, Bisht D.

Jul-Sep 2023

Int J Mycobacteriol.

<https://pubmed.ncbi.nlm.nih.gov/37721229/>

Background: Leprosy is a chronic granulomatous infection caused by *Mycobacterium leprae* or *Mycobacterium lepromatosis* and mainly affects the skin and peripheral nerves. Although treatable, its early intervention can significantly reduce the occurrence of disability. India accounts for more than half of new cases globally. This study was undertaken to better understand the clinical traits of newly diagnosed cases in a tertiary facility of Western Uttar Pradesh, and a few from Madhya Pradesh and Uttarakhand. **Methods:** The observational prospective study was carried out on all the newly diagnosed leprosy cases who visited the Outpatient Department of ICMR-National JALMA Institute for Leprosy and Other Mycobacterial Diseases, Agra, during October 2019-December 2022. After obtaining answers to a prestructured questionnaire with their consent, participants were enrolled in the study and underwent clinical examination and a slit-skin smear test. **Results:** A total of 56 cases were investigated, and among them, 20

(35.7%) and 36 (64.3%) women and men, respectively, had positive contact with persons affected by leprosy either within family, friends, or neighbors. It is observed that due to the delayed detection of leprosy cases, paucibacillary (PB) patients converted into multibacillary (MB) patients, and the number of MB cases is much higher compared to PB cases. **Conclusion:** Leprosy instances continue to spread frequently from sick to healthy people indicating continued transmission of leprosy in society. Multidrug therapy in the management of leprosy cases is effective; however, early diagnosis of PB cases is still a challenge and needs to be addressed on priority.

Mediastinal lymphadenopathies and skin lesions in a 49-year-old Sinhalese man.

Cefalo J, Salerni C, Ferranti G, Bimbatti M, Moneghini L, Carlucci P, Viganò O, Marchetti G, Gianelli U, Centanni S, Sotgiu G, Mondoni M.

15-09-2023

Monaldi Arch Chest Dis.

<https://pubmed.ncbi.nlm.nih.gov/37721088/>

Leprosy is a neglected disease sporadically reported in high-income countries. Skin lesion and peripheral nerve involvement represent most common manifestations. Mediastinal lymphadenopathy in the absence of superficial lymph nodes involvement is very rare. Atypical or rare clinical presentations of disease may delay diagnosis and therapy and cause potential life-threatening manifestations and disabilities. We describe the case of a 49-year-old Sinhalese man who was admitted to our hospital with a one-month history of peripheral neurological symptoms and skin lesions on lower limbs. CT scan showed the presence of mediastinal lymphadenopathies without lung parenchymal and superficial lymph nodes involvement. Endobronchial ultrasound-guided transbronchial needle aspiration showed the presence of granulomas while skin biopsy revealed dermo-hypodermic granulomas with perineural lymphohistiocytic inflammatory reaction. Fite-Faraco staining demonstrated the presence of acid-fast bacilli in both lymph nodal and skin biopsy and polymerase chain reaction was positive for *Mycobacterium leprae*. Multibacillary leprosy was then diagnosed.

Single-cell transcriptome analysis uncovers underlying mechanisms of acute liver injury induced by tripterygium glycosides tablet in mice.

Guo Q, Wu J, Wang Q, Huang Y, Chen L, Gong J, Du M, Cheng G, Lu T, Zhao M, Zhao Y, Qiu C, Xia F, Zhang J, Chen J, Qiu F, Wang J.

Aug-2023

J Pharm Anal.

<https://pubmed.ncbi.nlm.nih.gov/37719192/>

Facilitators and barriers in implementation of active TB drug safety monitoring and management (aDSM) in programmatic management of drug resistance TB in Dar es Salaam region.

Nyaulingo BC, Mhimbira FA.

15-09-2023

PLoS One.

<https://pubmed.ncbi.nlm.nih.gov/37713446/>

Background: World Health Organization (WHO) recommends that active TB Dug Safety Monitoring and Management (aDSM) be adopted in countries' programmatic management of DR-TB services. In Tanzania, the National TB Leprosy Programme (NTLP), under the ministry of health, adopted the aDSM component in 2018. The study evaluated the facilitators and barriers of aDSM implementation in Dar es Salaam.

Materials and methods: This was a process evaluation study that adapted the descriptive cross-sectional approach, conducted in Dar es Salaam region. A total of 19 respondents, including clinicians, DOT (Direct Observed Therapy) nurses and key NTLP personnel, were interviewed using interview guides. Qualitative content analysis based on Graneheim & Lundman was used to guide the analysis. **Results:** For aDSM to be implemented in a health facility, tools like forms for recoding and reporting, access to a functional laboratory for carrying out the required monitoring tests are a necessity. Moreover, the NTLP monitors the implementation through received aDSM reports and DR-TB supportive supervisions. However, it was found that in many health facilities, aDSM was partially being implemented due to various barriers: inadequate trained staff for aDSM implementation, administrative burden in reporting and delaying in AE management. **Conclusion:** aDSM is inadequately being implemented due to the many setbacks faced by HCWs. aDSM-specific supportive supervisions and trainings to HCWs; incorporating the current manual aDSM reporting flow into the already existing electronic (Tanzania Medicine and Medical Drugs Authority) TMDA database seems useful.

Leprosy Reactions: Experience in the Puerto Rico Hansen's Disease Population.

Rodriguez-Rivera DV, Pelet-Del Toro NM, Quintero-Noriega AL.

Sept-2023

P R Health Sci J.

<https://pubmed.ncbi.nlm.nih.gov/37709675/>

Objective: Hansen's disease (HD) is a chronic granulomatous infection endemic in the tropics. Its main clinical manifestations involve the cutaneous, nervous, and musculoskeletal systems. Leprosy reactions (LR) are systemic inflammatory and immune-mediated complications of HD. These include reversal reactions (RR), erythema nodosum leprosum (ENL), and Lucio phenomenon. These reactions significantly increase disease-related morbidity and disability. We aimed to determine the number and type of LR, their association to hosts' immune responses (Ridley Jopling classification), timing of development, and treatment of HD patients in Puerto Rico. **Methods:** A retrospective medical record review was performed on 291 HD patients containing LR status data available from the Dermatology Service at the Hispanic Alliance for Clinical & Translational Research. **Results:** Our data revealed that 83 (29%) patients

developed LR, of which 31% had RR and 69% had ENL. Most LR were observed in patients in the lepromatous border (97%): Borderline lepromatous leprosy (BL) and Lepromatous Leprosy (LL). Most patients with RR and ENL had a single episode (83% and 62%, respectively), and those that received multi-drug therapy (MDT) had a reaction onset occurring most frequently within the first year of MDT and after the first year of MDT, respectively. Prednisone was the first line treatment used to manage both types of LR. **Conclusion:** Most lepromatous reactions occur within the lepromatous border. ENL was the most common LR. Prompt recognition and management of these immunologic reactions is essential to prevent long term nerve function impairment.

Challenges in engaging the private sector for tuberculosis prevention and care in Nigeria: a mixed methods study.

Chijioke-Akaniro O, Onyemaechi S, Kuye J, Ubochioma E, Omoniyi A, Urhie O, Lawanson A, Ombeka VO, Hassan A, Asuke S, Anyaie C, Merle CS.

13-09-2023

BMJ Open.

<https://pubmed.ncbi.nlm.nih.gov/37709312/>

Dyschromatosis universalis hereditaria.

Murthy AB, Palaniappan V, Karthikeyan K, Anbarasan V.
Oct-2023

Int J Dermatol.

<https://pubmed.ncbi.nlm.nih.gov/37634201/>

Immune dysregulation and inflammation causing hypopigmentation in post kala-azar dermal leishmaniasis: partners in crime?

Sengupta R, Roy M, Dey NS, Kaye PM, Chatterjee M.
Oct-2023

Trends Parasitol.

<https://pubmed.ncbi.nlm.nih.gov/37586987/>

Post kala-azar dermal leishmaniasis (PKDL), a heterogeneous dermal sequela of visceral leishmaniasis (VL), is challenging in terms of its etiopathogenesis. Hypopigmentation is a consistent clinical feature in PKDL, but mechanisms contributing to the loss of melanocytes remains poorly defined. Like other hypopigmentary dermatoses - for example, vitiligo, psoriasis, and leprosy - the destruction of melanocytes is likely a multifactorial phenomenon, key players being immune dysregulation and inflammation. This review focuses on immunological mechanisms responsible for the 'murder' of melanocytes, prime suspects at the lesional sites being CD8⁺ T cells and keratinocytes and their criminal tools being proinflammatory cytokines, for example, IFN- γ , IL-6, and TNF- α . Collectively, these may cause decreased secretion of melanocyte growth factors, loss/attenuation of cell adhesion molecules and inflammasome activation, culminating in melanocyte death.

The effect of an oral product containing Amla fruit (*Phyllanthus emblica* L.) on

female androgenetic alopecia: A randomized controlled trial.

Akhbari M, Firooz A, Rahimi R, Shirzad M, Esmaealzadeh N, Shirbeigi L.

10-01-2023

J Ethnopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37487962/>

Unilateral Sweet's syndrome of lymphedematous inferior extremity associated with endometrial carcinoma: a unique presentation.

Zawar VP, Malekar PR, Nikam VV, Telhure BJ.

Oct-2023

Int J Dermatol.

<https://pubmed.ncbi.nlm.nih.gov/37424433/>

Assessment of efficacy of carboxytherapy in management of skin aging through evaluation of gene expression profile: a 2-split randomized clinical trial.

Bagherani N, Firooz A, Ghanadan A, Smoller BR, Mirmomeni G, Shojaei R, Mondanizadeh M, Tavoosidana G.

Nov-2023

Arch Dermatol Res.

<https://pubmed.ncbi.nlm.nih.gov/37402830/>

Skin aging is a continuous and irreversible process which results in impairment of the skin role as barrier against all aggressive exogenous factors. It mainly manifests by photoaging, laxity, sagging, wrinkling, and xerosis. Carboxytherapy is considered as a safe, minimally invasive modality used for rejuvenation, restoration, and recondition of the skin. In the current study, the efficacy of carboxytherapy in the treatment of skin aging was assessed through investigation of gene expression profile for Coll I, Coll III, Coll IV, elastin, FGF, TGF- β 1, and VEGF. Our study is a 2-split clinical trial in which carboxytherapy was performed on one side of the abdomen in 15 cases with intrinsically skin aging manifestations weekly for 10 sessions, while the other side of the abdomen was left without treatment. Two weeks after the last session, skin biopsies were taken from both the treated and control sides of the abdomen in order to assess gene expression profile by qRT-PCR. The analysis of gene expression levels for all of Coll I, Coll III, Coll IV, elastin, TGF- β 1, FGF and VEGF genes showed a statistically significant difference between the interventional and control groups. The findings for all of these seven genes showed increase in the interventional group, among which Coll IV, VEGF, FGF, and elastin showed the higher mean changes. Our study confirmed the effectiveness of carboxytherapy in treating and reversing the intrinsically aging skin. Clinical Trial Registration Code and Date of Registration: ChiCTR2200055185; 2022/1/2.

Dermoscopy of Hailey-Hailey disease in dark skin: a multicentric observational controlled study by the International

Dermoscopy Society Task Force on "Imaging in Skin of Color".

Ankad BS, Errichetti E, Lallas A, Chauhan P, Malani S, Neema S, Bhat YJ, Vinay K, Behera B, Khare S.

Oct-2023

Int J Dermatol.

<https://pubmed.ncbi.nlm.nih.gov/37057614/>

A systematic review of caregivers' knowledge and related factors towards pressure ulcer prevention.

Farzan R, Yarali M, Mollaei A, Ghaderi A, Takasi P, Sarafi M, Samidoust P, Mahdiabadi MZ, Firooz M, Hosseini SJ, Vajargah PG, Karkhah S.

Oct-2023

Int Wound J.

<https://pubmed.ncbi.nlm.nih.gov/36960763/>

This systematic review aimed to examine the knowledge of caregivers regarding pressure ulcer (PU) prevention. A thorough, methodical search was conducted from the earliest date to February 1, 2023 using keywords extracted from Medical Subject Headings such as "Caregivers", "Knowledge", and "Pressure ulcer" in various international electronic databases such as Scopus, PubMed, Web of Science, and Persian electronic databases such as Iranmedex and Scientific Information Database. The quality of the studies included in this systematic review was evaluated using an appraisal tool for cross-sectional studies (AXIS tool). In total, 927 caregivers participated in the eight studies. The average age of the participants was 40.50 (SD = 12.67). Among the participants, 61.87% were women. The average caregiver's knowledge of PU prevention was 53.70 (SD = 14.09) out of 100, which suggests a moderate level of knowledge. Factors such as level of education, age, occupation, information about PUs, attitude, and practice had a significant positive relationship with caregivers' knowledge related to the prevention of PUs. Knowledge had a significantly negative relationship with age. In addition, marital status, type of relationship, age, gender, occupation, level of education, and inpatient wards had a significant relationship with caregivers' knowledge regarding PUs prevention. Therefore, managers and policymakers in the medical field can help increase caregivers' knowledge by providing an online or in-person educational platform relevant to PU prevention.

A systematic review of health care workers' knowledge and related factors towards burn first aid.

Yarali M, Parvizi A, Ghorbani Vajargah P, Tamimi P, Mollaei A, Karkhah S, Firooz M, Hosseini SJ, Takasi P, Farzan R, Haddadi S.

Oct-2023

Int Wound J.

<https://pubmed.ncbi.nlm.nih.gov/36950866/>

Morsures de serpent

More People Die From Venomous Snakebites Each Year Than Have Ever Died from Ebola.

Willyard C.

Sept-2023

Nature.

<https://pubmed.ncbi.nlm.nih.gov/37730870/>

Moderately severe acute pancreatitis after snake bite: a case report from Southern China.

Cao R, He J, Yu Z, Chen Y, Zhu L.

20-09-2023

Z Gastroenterol.

<https://pubmed.ncbi.nlm.nih.gov/37729941/>

Venomous snakebites are not rare worldwide, and this is also the situation in the mountainous regions of southern China, where they pose a serious health risk to the local population. Snake venom usually causes a variety of clinical symptoms, such as local pain and swelling, systemic coagulation system abnormalities, and shock, but rarely leads to acute pancreatitis. In this report, we presented a rare case of moderately severe acute pancreatitis caused by snake venom even after prompt antivenom treatment. The patient was relieved, obviously, with effective treatment of acute pancreatitis and was discharged without severe complications. Although acute pancreatitis after snake bite is a rarity, its serious complications and lethality still deserve our utmost attention, and timely and standardized treatment of acute pancreatitis is needed in addition to antivenom treatment.

Broadening the research landscape in the field of snakebite envenoming: Towards a holistic perspective.

Gutiérrez JM, Bolon I, Borri J, Ruiz de Castañeda R.

Sept-2023

Toxicon.

<https://pubmed.ncbi.nlm.nih.gov/37659665/>

The sustainable conversion of floral waste into natural snake repellent and docking studies for antiophidic activity.

Punetha S, Vuppu S.

Sept-2023

Toxicon.

<https://pubmed.ncbi.nlm.nih.gov/37597788/>

First report of envenomation symptoms caused by the Eastern Montpellier snake, Malpolon insignitus (St.-Hilaire, 1827).

Dibiasi W, Lüddecke T.

Sept-2023

Toxicon.

<https://pubmed.ncbi.nlm.nih.gov/37591328/>

Snakebite is a global health problem with disastrous consequences. Accordingly, venoms plus their function and clinical aspects were intensively studied for several snakes, primarily with proteroglyphous and solenoglyphous dentition. Much less is known about the venoms from most opisthoglyphous (rear-fanged) snakes and it is often questionable which symptoms they may cause. Here, we provide the first description of the envenomation symptoms caused by a bite of the Eastern Montpellier snake *Malpolon insignitus* from Croatia. The clinical manifestations elicited by the bite were only local, and included bleeding, pulsatility and paresthesia, followed by sweating and signs of inflammation. The observed features subsided quickly, and the patient recovered fully with no long-term illness. Therefore, we conclude that *M. insignitus* does not represent a substantial (i.e. life threatening or morbidity-causing) threat. However, as related species in the *Malpolon* genus are known to be capable to deliver neurotoxic envenoming, we recommend to nevertheless carefully interact with *M. insignitus* and recommend that future studies should unveil its venom composition.

Kaempferol from *Moringa oleifera* demonstrated potent antivenom activities via inhibition of metalloproteinase and attenuation of *Bitis arietans* venom-induced toxicities.

Ajisebiola BS, Oladele JO, Adeyi AO.

Sept-2023

Toxicon.

<https://pubmed.ncbi.nlm.nih.gov/37558138/>

Bitis arietans venom (BAV) can induce severe pathophysiological disorders after envenoming. However, studies have shown that the *Moringa oleifera* fraction is effective against BAV toxicities and contains bioactive compounds with significant antivenom potency. This research aimed to identify the main active antivenom compound in the *M. oleifera* fraction responsible for neutralizing the toxicities induced by BAV. The compounds identified from *M. oleifera* fraction were docked in silico against the catalytic site of the Snake Venom Metalloproteinase (SVMP) to determine the lead inhibitor compound. The antivenom potency of the lead inhibitor compound was tested against BAV toxicities and metalloproteinase isolated from BAV using in vitro and in vivo methods, while EchiTab-Plus polyvalent antivenom served as a standard drug. The in silico prediction revealed kaempferol as the lead inhibitor compound with a docking score of -7.0 kcal/mol. Kaempferol effectively inhibited metalloproteinase activity at 0.2 mg/ml, compared to antivenom (0.4 mg/ml) and demonstrated significant antihaemorrhagic, antihaemolytic and coagulant effects against BAV activities. Furthermore, kaempferol showed a significant dose-dependent effect on altered haematological indices observed in rats challenged with LD₅₀ of BAV. Envenomed rats also showed an increase in oxidative stress biomarkers and antioxidant enzyme activity in the heart and kidney. However, treatment with kaempferol significantly ($P < 0.05$) decreased malondialdehyde levels and SOD activity with concomitant enhancement of glutathione levels. Severe

histopathological defects noticed in the organ tissues of envenomed rats were ameliorated after kaempferol treatment. Kaempferol is identified as the main active antivenom compound in *M. oleifera*, and this research highlights the potential of the compound as an effective alternative to snakebite treatment.

Evaluation of *Saxifraga stolonifera* phenolic extracts as a potential antivenom against *Deinagkistrodon acutus* venom: In vitro and in vivo studies.

Liu ZT, Zhang Y, Fang R, Simmonds M, Zhang XJ, Zhang TT, Sun TT, Chen XQ.

10-01-2024

J Ethnopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37495028/>

Urtica cannabina L. water extract exhibits anti-inflammatory activity by regulating inflammatory cytokines: In vitro and in vivo evidence.

Wujiamaity Z, Kizaibek M, Bahetijian D, Li Y, Gui Y, Abula A.

10-01-2024

J Ethnopharmacol.

<https://pubmed.ncbi.nlm.nih.gov/37453626/>

Mycétome

Middle Ear Mycetoma in a Case of Refractory Chronic Otitis Media.

Warren DA, Steele-Bomeisl E, Mowry S.

20-09-2023

Otol Neurotol.

<https://pubmed.ncbi.nlm.nih.gov/37733996/>

Specific and sensitive loop-mediated isothermal amplification (LAMP) method for *Madurella* strains, eumycetoma filamentous fungi causative agent.

Yoshioka I, Mori Y, Fahal AH, Siddig EE, Kaneko S, Yaguchi T.

18-09-2032

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37721946/>

Mycetoma case series in Somalia.

Doğan A, Ali AM, Ali MA, Abdullahi IM.

16-09-2023

Trop Doct.

<https://pubmed.ncbi.nlm.nih.gov/37715653/>

Onchocercose

Parasitic, bacterial, viral, immune-mediated, metabolic and nutritional

factors associated with nodding syndrome.

Edridge AWD, Abd-Elfarag G, Deijs M, Broeks MH, Cristella C, Sie B, Vaz FM, Jans JJM, Calis J, Verhoef H, Demir A, Poppert S, Nickel B, van Dam A, Sebit B, Titulaer MJ, Verweij JJ, de Jong MD, van Gool T, Faragher B, Verhoeven-Duif NM, Elledge SJ, van der Hoek L, Boele van Hensbroek M.

17-08-2023

Brain Commun.

<https://pubmed.ncbi.nlm.nih.gov/37731906/>

New clues to the elusive aetiology of nodding syndrome.

Spencer PS.

01-09-2023

Brain Commun.

<https://pubmed.ncbi.nlm.nih.gov/37731902/>

Nodding syndrome is a paediatric epileptic encephalopathy of unknown aetiology that affects children in impoverished communities of Eastern Africa subject to internal displacement. Set in southcentral South Sudan, where nodding syndrome first surfaced circa 1990, an important new study of recent-onset cases of nodding syndrome examined parasitic, bacterial, viral, immune-mediated, metabolic and nutritional factors associated with the brain disease. Infection with the nematode *Mansonella perstans*, but not with *Onchocerca volvulus*, was the most prominent finding in nodding syndrome cases versus controls. While *M. perstans* is unlikely to be causal of nodding syndrome, investigation of the freshwater habitats, where insect-to-human transmission of the filarial larvae takes place, may reveal a clue as to the aetiology of this neurodegenerative disease. The culpable environmental agent(s) must be able to induce neuroinflammation and tau pathology preferentially in infants and children.

Pian

How to find a forgotten disease like yaws: Lessons from the Philippine experience.

Dofitas BL.

14-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37708120/>

Rage

Rabies in the Republic of Kazakhstan: spatial and temporal characteristics of disease spread over one decade (2013-2022).

Kabzhanova AM, Kadyrov AS, Mukhanbetkaliyeva AA, Yessebekova GN, Mukhanbetkaliyev YY, Korennoy FI, Perez AM, Abdrakhmanov SK.

05-09-2023

Front Vet Sci.

<https://pubmed.ncbi.nlm.nih.gov/37732145/>

Evaluation of a rapid, chip-based, micro-PCR assay for detection of rabies virus in human and canine specimens.

Lodha L, Ananda AM, Ramachandran A, Manuel SP, Sannaiah SV, Mahadevan A, Mani RS.

Sept-2023

J Med Virol.

<https://pubmed.ncbi.nlm.nih.gov/37728394/>

Rabies, a lethal zoonotic encephalitis, remains a significant global health concern, causing an estimated 60 000 annual fatalities worldwide. Dogs serve as the primary reservoirs and vectors for transmitting this infection to humans. Definitive diagnosis of rabies in both human and animal cases necessitates laboratory testing involving various clinical specimens. However, the complexity of laboratory infrastructure and the need for skilled personnel, along with the challenge of maintaining cold-chain integrity during sample referral, hinder the decentralization of diagnostic facilities. This study aimed to assess the efficacy of the Truenat rabies assay, a rapid, portable, semiautomated, and closed PCR-based system, for the diagnosis of rabies in both humans and animals. The Truenat assay demonstrated a sensitivity of 100% and a specificity of 86.96% when compared with the fluorescent antibody test (FAT), as the reference standard, on 147 canine brain samples tested. Notably, the Truenat assay exhibited a sensitivity and specificity of 100% when tested on 48 human brain specimens. Furthermore, an examination of 148 human antemortem samples (cerebrospinal fluid, saliva, and skin biopsy) using both the Truenat assay and a validated real-time reverse transcriptase PCR assay revealed a κ value of 0.505, indicative of a moderate level of agreement between the two tests. Thus, the Truenat assay offers a robust, reliable, and affordable point-of-care solution to enhance rabies diagnostic capacity in endemic areas.

Volitional inspiration is mediated by two independent output channels in the primary motor cortex.

Helou LB, Dum RP.

18-09-2023

J Comp Neurol.

<https://pubmed.ncbi.nlm.nih.gov/37723869/>

The diaphragm is a multifunctional muscle that mediates both autonomic and volitional inspiration. It is critically involved in vocalization, postural stability, and expulsive core-trunk functions, such as coughing, hiccups, and vomiting. In macaque monkeys, we used retrograde transneuronal transport of rabies virus injected into the left hemidiaphragm to identify cortical neurons that have multisynaptic connections with phrenic motoneurons. Our research demonstrates that representation of the diaphragm in the primary motor cortex (M1) is split into two spatially separate and independent sites. No cortico-cortical connections are known to exist between these two sites. One site is located dorsal to the arm representation within the central sulcus and the second site is lateral to the arm. The dual representation of the diaphragm

warrants a revision to the somatotopic map of M1. The dorsal diaphragm representation overlaps with trunk and axial musculature. It is ideally situated to coordinate with these muscles during volitional inspiration and in producing intra-abdominal pressure gradients. The lateral site overlaps the origin of M1 projections to a laryngeal muscle, the cricothyroid. This observation suggests that the coordinated control of laryngeal muscles and the diaphragm during vocalization may be achieved, in part, by co-localization of their representations in M1. The neural organization of the two diaphragm sites underlies a new perspective for interpreting functional imaging studies of respiration and/or vocalization. Furthermore, our results provide novel evidence supporting the concept that overlapping output channels within M1 are a prerequisite for the formation of muscle synergies underlying fine motor control.

A Child Surviving Rabies in Tunisia: A Case Report.

Asma BH, Amal E, Hela F, Khaled F, Mariem H, Lamia G, Abdelmajid M.

18-09-2023

Indian J Pediatr.

<https://pubmed.ncbi.nlm.nih.gov/37721648/>

Rabies in Morocco: Epidemiological Aspects and Post-exposure Prophylaxis Management.

El Bazi K, El Bardi T, Miloudi M, Zouhair S, Arsalane L, El Kamouni Y.

17-08-2023

Cureus.

<https://pubmed.ncbi.nlm.nih.gov/37719506/>

Evaluation of an iELISA for detection and quantification of rabies antibodies in domestic dog sera.

Lugelo A, Hampson K, McElhinney LM, Lankester F.

14-09-2023

Vaccine.

<https://pubmed.ncbi.nlm.nih.gov/37716829/>

Many rabies endemic-countries have recognized rabies as a public health problem that can be eliminated. As a result, some countries have started implementing small-scale vaccination programs with the aim of scaling them up. Post-vaccination serological monitoring is crucial to assess the efficacy of these programs. The recommended serological tests, the rapid fluorescent focus inhibition test, and the fluorescent antibody virus neutralization (FAVN) are accurate; however, the procedures require considerable expertise and must be carried out in high containment facilities, which are often not available in rabies endemic countries. Given these constraints, enzyme linked immunosorbent assays (ELISAs) have been considered as alternative methods to neutralization tests. This is the first study to evaluate, under field conditions, the performance of the commercial rabies indirect-ELISA (iELISA), the Platelia™ Rabies II kit and usum Veterinarium kit, using sera from domestic dogs. Serum samples were collected from two groups of community dogs in northern

Tanzania: i) dogs with no history of vaccination against rabies (n = 100) and ii) dogs vaccinated with the Nobivac Canine Rabies® vaccine (n = 101) four weeks previously. When compared to the gold standard FAVN test, the iELISA was found to be 99% specific and 98% sensitive and there was a significant correlation between the two tests ($p < 0.001$, $r = 0.92$). Given these findings, we conclude that the Platelia™ Rabies II kit ad usum Veterinarium can be considered a valuable tool for the rapid assessment of vaccination status of animals in vaccination programs.

Exosomes derived from human umbilical cord mesenchymal stem cells loaded with RVG-Lamp2b and Netrin-1 promotes Schwann cell invasion and migration.

He J, Du Z, Zhang H, Wang B, Xia J.

11-09-2023

Tissue Cell.

<https://pubmed.ncbi.nlm.nih.gov/37716176/>

Clinical effect analysis of using medical glue versus conventional suturing to treat dog bite in children's maxillofacial region after negative pressure sealing drainage: A randomized trial.

Lisong H, Lianfu W, Jinhong Y, Haibin Z.

15-09-2023

Medicine (Baltimore).

<https://pubmed.ncbi.nlm.nih.gov/37713853/>

Schistosomiasis

Comparative assessment of the SjSAP4-incorporated gold immunochromatographic assay for the diagnosis of human schistosomiasis japonica.

Mu Y, Rivera J, McManus DP, Weerakoon KG, Ross AG, Olveda RM, Gordon CA, You H, Jones MK, Cai P.

01-09-2023

Front Public Health.

<https://pubmed.ncbi.nlm.nih.gov/37736084/>

Programming schistosomes - a crisper approach to transgenesis.

Kalinna BH.

15-09-2023

Trends Parasitol.

<https://pubmed.ncbi.nlm.nih.gov/37718190/>

Ittiprasert and colleagues identified genomic safe harbour (GSH) sites in *Schistosoma mansoni* using computational methods and inserted a transgene into one of the sites through clustered regularly interspaced short palindromic repeats (CRISPR)/Cas9-assisted homology-directed repair. This study outlines a promising strategy for functional genomics to study this parasite that causes a debilitating and neglected tropical disease.

Ovarian schistosomiasis: challenges of a neglected ectopic involvement of blood flukes. Case report and review of literature.

Elias E, Silvestri V, Mushi V, Mandarano M.

Aug-2023

Pathologica.

<https://pubmed.ncbi.nlm.nih.gov/37711041/>

Introduction: Female genital schistosomiasis (FGS), infection of *Schistosoma* spp. trematode in the gynaecological apparatus, is the most neglected sexual and reproductive health condition in sub-Saharan Africa with an estimated of 20-120 million cases. The ectopic entrapment of *Schistosoma* eggs after oviposition can occur in 0.5% of cases in fallopian tubes and ovaries. **The case:** We report a case of 38-years-old woman assessed for a 10 year history of infertility. On ultrasound, multiple cystic formations were observed in the ovary. Histology after oophorectomy to exclude malignancy showed granulomatous formations surrounding *Schistosoma* spp. eggs in proximity of corpus luteus and haemorrhagicum. **Discussion:** Ectopic *Schistosoma* oviposition, seen in the ovary and fallopian tubes as in our case, can be a potential cause of reproductive organ damage and complications such as infertility, ectopic pregnancy, miscarriage, premature birth, low birth weight, and even maternal death. **Conclusions:** More studies are needed on ovarian FGS and its impact on women fertility to guide specific interventions targeting vulnerable population of childbearing age, contributing to the NTD WHO 2030 aim of eliminating schistosomiasis as a matter of public health.

Co-infection of Plasmodium falciparum and Schistosoma mansoni is associated with anaemia.

Dassah SD, Nyaah KE, Senoo DKJ, Ziem JB, Aniweh Y, Amenga-Etego L, Awandare GA, Abugri J.

14-09-2023

Malar J.

<https://pubmed.ncbi.nlm.nih.gov/37710279/>

H19/Mir-130b-3p/Cyp4a14 potentiate the effect of praziquantel on liver in the treatment of Schistosoma japonicum infection.

Ma R, Liu Q, Liu Z, Sun X, Jiang X, Hou J, Zhang Y, Wu Y, Cheng M, Dong Z.

Nov-2023

Acta Trop.

<https://pubmed.ncbi.nlm.nih.gov/37659685/>

Background: Schistosomiasis is a prevalent infectious disease caused by the parasitic trematodes of the genus *Schistosoma*. Praziquantel (PZQ), a safe and affordable drug, is the recommended oral treatment for schistosomiasis. The main pathologic manifestation of schistosomiasis is liver injury. However, the role and interactions of various RNA molecules in the effect of PZQ on the liver after *S. japonicum* infection have not been elucidated.

Results: In this study, C57BL/6 mice were randomly divided into the control group, infection group, and PZQ treatment group. Total RNA was extracted from the livers of the mice. High-throughput whole transcriptome sequencing was performed to detect the RNA expression profiles in the three groups. A co-expression gene-interaction network was established based on the significant differentially expressed genes in the PZQ treatment group; messenger RNA (mRNA) Cyp4a14 was identified as a critical hub gene. Furthermore, competitive endogenous RNA networks were constructed by predicting the specific binding relations between mRNA and long noncoding (lnc) RNA and between lncRNA and microRNA (miRNA) of Cyp4a14, suggesting the involvement of the H19/miR-130b-3p/Cyp4a14 regulatory axis. Dual luciferase reporter assay result proved the specific binding of miR-130b-3p with Cyp4a14 3'UTR.

Conclusions: Our findings indicate the involvement of the H19/miR-130b-3p/Cyp4a14 axis in the effect of PZQ on the liver after *S. japonicum* infection. Moreover, the expression of mRNA Cyp4a14 could be regulated by the bonding of miR-130b-3p with 3'UTR of Cyp4a14. The findings of this study could provide a novel perspective to understand the host response to PZQ against *S. japonicum* in the future.

A target-based discovery from a parasitic helminth as a novel therapeutic approach for autoimmune diseases.

Ni Y, Xiong R, Zhu Y, Luan N, Yu C, Yang K, Wang H, Xu X, Yang Y, Sun S, Shi L, Padde JR, Chen L, Chen L, Hou M, Xu Z, Lai R, Ji M.

Sep-2023

EBioMedicine.

<https://pubmed.ncbi.nlm.nih.gov/37579625/>

Background: Regulatory T cells (Tregs) can alleviate the development of autoimmune and inflammatory diseases, thereby proposing their role as a new therapeutic strategy. Parasitic helminths have co-evolved with hosts to generate immunological privilege and immune tolerance through inducing Tregs. Thus, constructing a "Tregs-induction"-based discovery pipeline from parasitic helminth is a promising strategy to control autoimmune and inflammatory diseases. **Methods:** The gel filtration chromatography and reverse-phase high-performance liquid chromatography (RP-HPLC) were used to isolate immunomodulatory components from the egg extracts of *Schistosoma japonicum*. The extracted peptides were evaluated for their effects on Tregs suppressive functions using flow cytometry, ELISA and T cell suppression assay. Finally, we carried out colitis and psoriasis models to evaluate the function of Tregs induced by helminth-derived peptide in vivo. **Findings:** Here, based on target-driven discovery strategy, we successfully identified a small 3 kDa peptide (SjDX5-53) from egg extracts of schistosome, which promoted both human and murine Tregs production. SjDX5-53 presented immunosuppressive function by arresting dendritic cells (DCs) at an immature state and augmenting the proportion and suppressive capacity of Tregs. In mouse models, SjDX5-53 protected mice against autoimmune-

related colitis and psoriasis through inducing Tregs and inhibiting inflammatory T-helper (Th) 1 and Th17 responses. **Interpretation:** SjDX5-53 exhibited the promising therapeutic effects in alleviating the phenotype of immune-related colitis and psoriasis. This study displayed a screening and validation pipeline of the inducer of Tregs from helminth eggs, highlighting the discovery of new biologics inspired by co-evolution of hosts and their parasites. **Funding:** This study was supported by the Natural Science Foundation of China (82272368) and Natural Science Foundation of Jiangsu Province (BK20211586).

Characteristics of peripheral lymphocyte subsets in patients with different stages of schistosomiasis japonica.

Zhou Z, Li J, Jiang J, Luo Y, Yingzi M.

Oct-2023

Parasite Immunol.

<https://pubmed.ncbi.nlm.nih.gov/37551055/>

Trématodoses d'origine alimentaire (clonorchiose, opisthorchiase, fasciolase et paragonimose

Serological diagnosis of fasciolosis (*Fasciola hepatica*) in humans, cattle, and sheep: a meta-analysis.

Drescher G, de Vasconcelos TCB, Belo VS, Pinto MMDG, Rosa JO, Morello LG, Figueiredo FB.

31-08-2023

Front Vet Sci.

<https://pubmed.ncbi.nlm.nih.gov/37736397/>

Fasciola hepatica can cause problems in both animals and humans. Fasciolosis can be diagnosed through the indirect ELISA immunodiagnostic test. Serological diagnosis of *Fasciola* is based on recombinant antigens secreted by this worm. We used PubMed and Google Scholar databases to review the published literature on 'antigens with immunogenic potential' used in serological tests to identify antibodies against *F. hepatica* in humans, cattle, and sheep. Studies that investigated diagnostic tests with common reference standards were included in the sensitivity and/or specificity bivariate meta-analysis. In the quality and susceptibility to bias analysis of the 33 included studies, 26 fulfilled at least six (75%) of the eight QUADAS criteria and were considered good-quality papers. We found that most of the studies used native excretory-secretory antigens and recombinant cathepsin in ELISA tests for serological diagnosis of fascioliasis in humans, cattle, and sheep. The meta-analysis revealed that all antigens demonstrated good accuracy. The best results in terms of sensitivity [0.931-2.5% confidence interval (CI) and 0.985-97.5% CI] and specificity (0.959-2.5% CI and

0.997-97.5% CI) were found in human *FhES*. *FhrCL-1*, *FhES*, and *FhrSAP-2* antigens gave the best results for the serum diagnosis of human and animal fasciolosis.

Diagnosis of Indolent *Clonorchis sinensis* and *Opisthorchis viverrini* Infections as Risk Factors for Cholangiocarcinoma: An Unmet Medical Need.

Herrick JA, Rubinstein I.

Mai-2023

Fed Pract.

<https://pubmed.ncbi.nlm.nih.gov/37727828/>

Background: Cholangiocarcinoma is a highly aggressive cancer of the biliary tract epithelium. This form of cancer is prevalent in Asia, and recent reports show that its incidence is relatively rare but increasing in the United States. Although risk factors for cholangiocarcinoma have yet to be elucidated, a growing body of literature suggests chronic infection of genetically susceptible individuals with the food-borne zoonotic trematodes *Clonorchis sinensis* (*C sinensis*) and *Opisthorchis viverrini* (*O viverrini*) may play a role. **Observations:** Although most infected people remain asymptomatic, untreated indolent infections with *C sinensis* and *O viverrini* may persist in peripheral intrahepatic bile ducts for almost 30 years. During this period, the trematodes' feeding activities and their excretory-secretory products may damage the bile duct epithelium and promote local inflammation. These pathological processes could then provoke epithelial desquamation, adenomatous hyperplasia, goblet cell metaplasia, periductal fibrosis, and granuloma formation that are conducive to the initiation and progression of cholangiocarcinoma in genetically susceptible people. The International Agency for Research on Cancer has determined that there is sufficient evidence in humans for the carcinogenicity of chronic infections with *C sinensis* and *O viverrini*. **Conclusions:** Timely serodiagnosis of indolent *C sinensis* and *O viverrini* infections is important as these parasites may be a risk factor for cholangiocarcinoma in veterans who served in Vietnam. About 774,000 living Americans served in Vietnam and there is an urgent need to develop sensitive and specific serologic assays to detect both acute and indolent infections. We posit that testing and treatment of high-risk populations could lead to earlier detection and treatment of cholangiocarcinoma, leading to improved overall survival.

Prevalence of Fascioliasis in Slaughtered Cattle in Ağrı Province.

Şahin M, Afshar MT, Yıldız R, Aydemir S, Yılmaz H, Taş Cengiz Z.

18-09-2023

Türkiye Parazitol Derg.

<https://pubmed.ncbi.nlm.nih.gov/37724364/>

Objective: In this study, it was aimed to reveal the frequency of fascioliasis in cattle slaughtered in the slaughterhouses of Ağrı province. **Methods:** The study was carried out on 230 cattle. The presence of *Fasciola hepatica* eggs in stool and bile fluid samples taken from

each cattle was investigated by sedimentation-zinc sulfate flotation method, and the presence of adult parasites in the liver and bile ducts by postmortem examination.

Results: The study was conducted on 230 cattle samples. *Fasciola* spp. eggs were observed in 43 (18.7%) of the stools examined. As a result of the postmortem examination of the liver and gall bladder, *F. hepatica* adults were found in 52 (22.6%) cattle. All cattle positive in stool examination were also positive in liver and gallbladder examination. *Fasciola gigantica* adults were not detected in any of the cattle, and there was no statistically significant difference in terms of gender and race.

Conclusion: In this study conducted on cattle in the Ağrı region, *F. hepatica* was found to be significantly common. The data obtained show that in order to prevent economic losses in animal husbandry, which is an important source of livelihood of the local people, effective prevention and control programs should be planned and implemented, and both sheep and cattle breeders should be made aware of the prevention of this infection.

Roaming behavior of the owned domestic cats (*Felis catus*) with possible roles in the transmission of *Opisthorchis viverrini* in the endemic area in Khon Kaen, Thailand.

Sakamoto M, Upontain S, Sota P, Mariner J, Tangkawattana P, Tangkawattana S.

Nov-2023

Acta Trop.

<https://pubmed.ncbi.nlm.nih.gov/37660777/>

Survey of intestinal parasites in swine farms raised in Western Nepal.

Chaudhary B, Parajuli RP, Dhakal P.

Sept-2023

Vet Med Sci.

<https://pubmed.ncbi.nlm.nih.gov/37463607/>

Trypanosomes (trypanosomiasis et maladie de Chagas)

Translational control by *Trypanosoma brucei* DRBD18 contributes to the maintenance of the procyclic state.

Ciganda M, Sotelo-Silveira J, Dubey AP, Pandey P, Smith JT Jr, Shen S, Qu J, Smircich P, Read LK.

20-09-2023

RNA.

<https://pubmed.ncbi.nlm.nih.gov/37730435/>

Trypanosoma brucei occupies distinct niches throughout its life cycle, within both the mammalian and tsetse fly hosts. The immunological and biochemical complexity and variability of each of these environments require a reshaping of the protein landscape of the parasite both to evade surveillance and face changing metabolic demands. In kinetoplastid protozoa, including *T. brucei*, post-transcriptional control mechanisms are the primary means

of gene regulation, and these are often mediated by RNA-binding proteins. DRBD18 is a *T. brucei* RNA-binding protein that reportedly interacts with ribosomal proteins and translation factors. Here, we tested a role for DRBD18 in translational control. We validate the DRBD18 interaction with translating ribosomes and the translation initiation factor, eIF3a. We further show that DRBD18 depletion by RNA interference leads to altered polysomal profiles with a specific depletion of heavy polysomes. Ribosome profiling analysis reveals that 101 transcripts change in translational efficiency (TE) upon DRBD18 depletion: 41 exhibit decreased TE and 60 exhibit increased TE. A further 66 transcripts are buffered, i.e. changes in transcript abundance are compensated by changes in TE such that the total translational output is expected not to change. In DRBD18-depleted cells, a set of transcripts that codes for procyclic form-specific proteins is translationally repressed while, conversely, transcripts that code for bloodstream form- and metacyclic form-specific proteins are translationally enhanced. RNA immunoprecipitation/qRT-PCR indicates that DRBD18 associates with members of both repressed and enhanced cohorts. These data suggest that DRBD18 contributes to the maintenance of the procyclic state through both positive and negative translational control of specific mRNAs.

Disruption of the inositol phosphorylceramide synthase gene affects *Trypanosoma cruzi* differentiation and infection capacity.

Aprigio-Santos NS, Estevez-Castro CF, Macedo JP, Chame DF, Castro-Gomes T, Santos-Cardoso M, Burle-Caldas GA, Covington CN, Steel PG, Smith TK, Denny PW, Teixeira SMR.

20-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37729272/>

Sphingolipids (SLs) are essential components of all eukaryotic cellular membranes. In fungi, plants and many protozoa, the primary SL is inositol-phosphorylceramide (IPC). *Trypanosoma cruzi* is a protozoan parasite that causes Chagas disease (CD), a chronic illness for which no vaccines or effective treatments are available. IPC synthase (IPCS) has been considered an ideal target enzyme for drug development because phosphoinositol-containing SL is absent in mammalian cells and the enzyme activity has been described in all parasite forms of *T. cruzi*. Furthermore, IPCS is an integral membrane protein conserved amongst other kinetoplastids, including *Leishmania major*, for which specific inhibitors have been identified. Using a CRISPR-Cas9 protocol, we generated *T. cruzi* knockout (KO) mutants in which both alleles of the IPCS gene were disrupted. We demonstrated that the lack of IPCS activity does not affect epimastigote proliferation or its susceptibility to compounds that have been identified as inhibitors of the *L. major* IPCS. However, disruption of the *T. cruzi* IPCS gene negatively affected epimastigote differentiation into metacyclic trypomastigotes as well as proliferation of intracellular amastigotes and differentiation of amastigotes into tissue culture-derived trypomastigotes. In accordance with

previous studies suggesting that IPC is a membrane component essential for parasite survival in the mammalian host, we showed that *T. cruzi* IPCS null mutants are unable to establish an infection in vivo, even in immune deficient mice.

Synthesis and Biophysical and Biological Studies of N-Phenylbenzamide Derivatives Targeting Kinetoplastid Parasites.

Nué-Martínez JJ, Cisneros D, Moreno-Blázquez MDV, Fonseca-Berzal C, Manzano JI, Kraeutler D, Ungogo MA, Aloraini MA, Elati HAA, Ibáñez-Escribano A, Lagartera L, Herraiz T, Gamarro F, de Koning HP, Gómez-Barrio A, Dardonville C.

20-09-2023

J Med Chem.

<https://pubmed.ncbi.nlm.nih.gov/37729094/>

Tsetse fly ecology and risk of transmission of African trypanosomes related to a protected forest area at a military base in the city of Abidjan, Côte d'Ivoire.

Konan YJR, Berté D, Ta BTD, Demoncheaux JP, Sauzet S, Watier-Grillot S, Kouadio KAM, N'dri L, Coulibaly B, Solano P, Ravel S, Ségard A, Kaba D, De Meeûs T, Djohan V, Jamonneau V.

2023

Parasite.

<https://pubmed.ncbi.nlm.nih.gov/37728508/>

African trypanosomoses, whose pathogens are transmitted by tsetse flies, are a threat to animal and human health. Tsetse flies observed at the military base of the French Forces in Côte d'Ivoire (FFCI base) were probably involved in the infection and death of military working dogs. Entomological and parasitological surveys were carried out during the rainy and dry seasons using "Vavoua" traps to identify tsetse fly species, their distribution, favorable biotopes and food sources, as well as the trypanosomes they harbor. A total of 1185 *Glossina palpalis palpalis* tsetse flies were caught, corresponding to a high average apparent density of 2.26 tsetse/trap/day. The results showed a heterogeneous distribution of tsetse at the FFCI base, linked to more or less favorable biotopes. No significant variation in tsetse densities was observed according to the season. The overall trypanosomes infection rate according to microscopic observation was 13.5%. Polymerase chain reaction (PCR) analyses confirmed the presence of *Trypanosoma vivax* and *T. congolense* forest type, responsible for African animal trypanosomosis. Our findings suggest that there is a risk of introduction and transmission of *T. brucei* gambiense, responsible for human African trypanosomiasis, on the study site. This risk of transmission of African trypanosomes concerns not only the FFCI base, but also inhabited peripheral areas. Our study confirmed the need for vector control adapted to the eco-epidemiological context of the FFCI base.

Trypanosoma cruzi screening in people living with HIV in the UK.

Ahmed N, Herbert S, Arenas-Pinto A, Rickman H, Benn P, Edwards SG, Chiodini PL, Grant AD.

20-09-2023

Int J STD AIDS.

<https://pubmed.ncbi.nlm.nih.gov/37728103/>

Gene editing of putative cAMP and Ca²⁺ - regulated proteins using an efficient cloning-free CRISPR/Cas9 system in Trypanosoma cruzi.

Chiurillo MA, Ahmed M, González C, Raja A, Lander N.

19-09-2023

J Eukaryot Microbiol.

<https://pubmed.ncbi.nlm.nih.gov/37724511/>

Trypanosoma cruzi, the agent of Chagas disease, must adapt to a diversity of environmental conditions that it faces during its life cycle. The adaptation to these changes is mediated by signaling pathways that coordinate the cellular responses to the new environmental settings. Cyclic AMP (cAMP) and Calcium (Ca²⁺) signaling pathways regulate critical cellular processes in this parasite, such as differentiation, osmoregulation, host cell invasion and cell bioenergetics. Although the use of CRISPR/Cas9 technology prompted reverse genetics approaches for functional analysis in *T. cruzi*, it is still necessary to expand the toolbox for genome editing in this parasite, as for example to perform multigene analysis. Here we used an efficient T7RNAP/Cas9 strategy to tag and delete three genes predicted to be involved in cAMP and Ca²⁺ signaling pathways: a putative Ca²⁺/calmodulin-dependent protein kinase (CAMK), Flagellar Member 6 (FLAM6) and Cyclic nucleotide-binding domain/C2 domain-containing protein (CC2CP). We endogenously tagged these three genes and determined the subcellular localization of the tagged proteins. Furthermore, the strategy used to knockout these genes allows us to presume that TcCC2CP is an essential gene in *T. cruzi* epimastigotes. Our results will open new venues for future research on the role of these proteins in *T. cruzi*.

Evaluation of recombinant Babesia gibsoni thrombospondin-related adhesive protein (BgTRAP) for the sero-diagnosis of canine babesiosis.

Deepa CK, Varghese A, Ajith Kumar KG, Nandini A, Kumar GS, Hembram PK, Dinesh CN, Juliet S, Vergis J, Sindhu OK, Ravindran R.

16-09-2023

Exp Parasitol.

<https://pubmed.ncbi.nlm.nih.gov/37722650/>

Canine babesiosis, caused by *Babesia gibsoni* is one of the most significant tick-borne illnesses across the world. Light microscopy as well as polymerase chain reaction may fail in the diagnosis of disease when the level of parasitaemia is very low during subclinical and chronic cases. The serological techniques using a recombinant protein will be useful for the accurate and sensitive surveillance of the disease, especially in chronic cases. The present study

describes the evaluation of recombinant N-terminal *B. gibsoni* Thrombospondin-related adhesive protein (BgTRAP) based indirect ELISA for the sero-diagnosis of *B. gibsoni* infection in dogs. A partial N-terminal BgTRAP gene (870 bp) of *B. gibsoni*, was expressed in *Escherichia coli* using a pET32a (+) vector. The recombinant BgTRAP based indirect ELISA was compared with the PCR targeting the same gene. A sensitivity and a specificity of 84% and 73.33% were observed in the indirect ELISA. The accuracy, positive predictive value and negative predictive value were 78.18%, 72.30%, 84.60% respectively. The rBgTRAP antigen did not show any cross-reactivity with sera from dogs infected with common helminth parasites viz. *Ancylostoma caninum*, *Dirofilaria immitis*, *D. repens*, *Spirometra* spp., *Toxocara canis* and haemoparasites like *Trypanosoma evansi*, *Babesia vogeli*, *Hepatozoon canis* and *Ehrlichia canis*.

Bis-6-amidino-benzothiazole Derivative that Cures Experimental Stage 1 African Trypanosomiasis with a Single Dose.

Racané L, Ptiček L, Kostrun S, Raić-Malić S, Taylor MC, Delves M, Alsford S, Olmo F, Francisco AF, Kelly JM.

18-09-2023

J Med Chem.

<https://pubmed.ncbi.nlm.nih.gov/37722077/>

We designed and synthesized a series of symmetric bis-6-amidino-benzothiazole derivatives with aliphatic central units and evaluated their efficacy against bloodstream forms of the African trypanosome *Trypanosoma brucei*. Of these, a dicationic benzothiazole compound (**9a**) exhibited sub-nanomolar in vitro potency with remarkable selectivity over mammalian cells (>26,000-fold). Unsubstituted 5-amidine groups and a cyclohexyl spacer were the crucial determinants of trypanocidal activity. In all cases, mice treated with a single dose of 20 mg kg⁻¹ were cured of stage 1 trypanosomiasis. The compound displayed a favorable in vitro ADME profile, with the exception of low membrane permeability. However, we found evidence that uptake by *T. brucei* is mediated by endocytosis, a process that results in lysosomal sequestration. The compound was also active in low nanomolar concentrations against cultured asexual forms of the malaria parasite *Plasmodium falciparum*. Therefore, **9a** has exquisite cross-species efficacy and represents a lead compound with considerable therapeutic potential.

Solid forms of the new antitrypanosomal 1-(4-acetamide-benzenesulfonyl)-benzimidazole: preparation and physicochemical characterization.

Valdez MMM, Fandiño OE, Faudone SN, Ayala AP, Caira MR, Sperandeo NR.

14-09-2023

J Pharm Sci.

<https://pubmed.ncbi.nlm.nih.gov/37716530/>

Strasseriolides display in vitro and in vivo activity against trypanosomal parasites and cause morphological and size defects in Trypanosoma cruzi.

Bosch-Navarrete C, Pérez-Moreno G, Annang F, Diaz-Gonzalez R, García-Hernández R, Rocha H, Gamarro F, Cordón-Obras C, Navarro M, Rodríguez A, Genilloud O, Reyes F, Vicente F, Ruiz-Pérez LM, González-Pacanowska D.

15-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37713416/>

Neglected diseases caused by kinetoplastid parasites are a health burden in tropical and subtropical countries. The need to create safe and effective medicines to improve treatment remains a priority. Microbial natural products are a source of chemical diversity that provides a valuable approach for identifying new drug candidates. We recently reported the discovery and bioassay-guided isolation of a novel family of macrolides with antiplasmodial activity. The novel family of four potent antimalarial macrolides, strasseriolides A-D, was isolated from cultures of *Strasseria geniculata* CF-247251, a fungal strain obtained from plant tissues. In the present study, we analyze these strasseriolides for activity against kinetoplastid protozoan parasites, namely, *Trypanosoma brucei brucei*, *Leishmania donovani* and *Trypanosoma cruzi*. Compounds exhibited mostly low activities against *T. b. brucei*, yet notable growth inhibition and selectivity were observed for strasseriolides C and D in the clinically relevant intracellular *T. cruzi* and *L. donovani* amastigotes with EC50 values in the low micromolar range. Compound C is fast-acting and active against both intracellular and trypomastigote forms of *T. cruzi*. While cell cycle defects were not identified, prominent morphological changes were visualized by differential interference contrast microscopy and smaller and rounded parasites were visualized upon exposure to strasseriolide C. Moreover, compound C lowers parasitaemia in vivo in acute models of infection of Chagas disease. Hence, strasseriolide C is a novel natural product active against different forms of *T. cruzi* in vitro and in vivo. The study provides an avenue for blocking infection of new cells, a strategy that could additionally contribute to avoid treatment failure.

Analysis of a Novel Peptide That Is Capable of Inhibiting the Enzymatic Activity of the Protein Kinase A Catalytic Subunit-Like Protein from *Trypanosoma equiperdum*.

Araujo NA, Bubis J.

15-09-2023

Protein J.

<https://pubmed.ncbi.nlm.nih.gov/37713008/>

A structural classification of the variant surface glycoproteins of the African trypanosome.

Đaković S, Zeelen JP, Gkeka A, Chandra M, van Straaten M, Foti K, Zhong J, Vlachou EP, Aresta-Branco F, Verdi JP, Papavasiliou FN, Stebbins CE.

01-09-2023

PLoS Negl Trop Dis.

<https://pubmed.ncbi.nlm.nih.gov/37656766/>

Design, synthesis and antitrypanosomatid activity of 2-nitroimidazole-3,5-disubstituted isoxazole compounds based on benzimidazole.

Carvalho DB, Costa PAN, Portapilla GB, das Neves AR, Shiguemoto CYK, Pelizaro BI, Silva F, Piranda EM, Arruda CCP, Gaspari PDM, Cardoso IA, Luccas PH, Nonato MC, Lopes NP, de Albuquerque S, Baroni ACM.

15-11-2023

Eur J Med Chem.

<https://pubmed.ncbi.nlm.nih.gov/37573209/>

Chagas disease and leishmaniasis are neglected diseases of high priority as a public health problem. Pharmacotherapy is based on the administration of a few drugs, which exhibit hazardous adverse effects and toxicity to the patients. Thus, the search for new antitrypanosomatid drugs is imperative to overcome the limitations of the treatments. In this work, 46 2-nitroimidazole 3,5-disubstituted isoxazole compounds were synthesized in good yields by [3 + 2] cycloaddition reaction between terminal acetylene (propargyl-2-nitroimidazole) and chloro-oximes. The compounds were non-toxic to LLC-MK2 cells. Compounds 30, 35, and 44 showed in vitro antichagasic activity, 15-fold, 12-fold, and 10-fold, respectively, more active than benzimidazole (BZN). Compounds 30, 35, 44, 45, 53, and 61 acted as substrates for the TcNTR enzyme, indicating that this might be one of the mechanisms of action involved in their antiparasitic activity. Piperazine series and 4-monosubstituted compounds were potent against *T. cruzi* parasites. Besides the in vitro activity observed in compound 45, the in vivo assay showed that the compound only reduced the parasitemia levels by the seventh-day post-infection (77%, $p > 0.001$) compared to the control group. However, 45 significantly reduced the parasite load in cardiac tissue ($p < 0.01$) 11 days post-infection. Compounds 49, 52, and 54 showed antileishmanial activity against intracellular amastigotes of *Leishmania (L.) amazonensis* at the same range as amphotericin B. These findings highlight the antitrypanosomatid properties of 2-nitroimidazole 3,5-disubstituted isoxazole compounds and the possibility in using them as antitrypanosomatid agents in further studies.

Ulcère de Buruli

Improving TB control: efficiencies of case-finding interventions in Nigeria.

Babai AP, Odume BB, Ogbudebe CL, Chukwuogo O, Nwokoye N, Dim CC, Useni S, Nongo D, Eneogu R, Chijioke-Akaniro O, Anyaie C.

21-09-2023

Public Health Action.

<https://pubmed.ncbi.nlm.nih.gov/37736578/>

Setting: KNCV Nigeria implements seven key TB case-finding interventions. It was critical to evaluate the efficiency of these interventions in terms of TB yield to direct future prioritisation in the country. **Objectives:** To

compare the efficiency of active case-finding (ACF) interventions for TB in Nigeria. **Design:** Data from the 2020-2022 implementing period were analysed retrospectively. Intervention efficiencies were analysed using the number needed to screen (NNS), the number needed to test (NNT) and the true screen-positive (TSP) rate. **Results:** Across the interventions, 21,704,669 persons were screened for TB, 1,834,447 (8.5%) were presumed to have TB (7.7% pre-diagnostic drop-out rate) and 122,452 were diagnosed with TB (TSP rate of 7.2%). The average TSP rate of interventions that used both the WHO four-symptom screen (W4SS) and portable digital X-ray (PDX) screening algorithm was significantly higher (22.6%) than those that employed the former alone (7.0%; OR 3.9, 95% CI 3.74-3.98; $P < 0.001$). The average NNT for interventions with W4SS/PDX screening was 4 (range: 4-5), while that of W4SS-only screening was 14 (range: 11-22). **Conclusions:** Interventions using the PDX in addition to W4SS for TB screening were more efficient in terms of TB case yield than interventions that used symptom-based TB screening only.

Comprehensive Case-Control Study of Protective and Risk Factors for Buruli Ulcer, Southeastern Australia.

McNamara BJ, Blasdel KR, Yerramilli A, Smith IL, Clayton SL, Dunn M, Tay EL, Gibney KB, Waidyatillake NT, Hussain MA, Muleme M, O'Brien DP, Athan E.

Oct-2023

Emerg Infect Dis.

<https://pubmed.ncbi.nlm.nih.gov/37735741/>

To examine protective and risk factors for Buruli ulcer (BU), we conducted a case-control study of 245 adult BU cases and 481 postcode-matched controls across BU-endemic areas of Victoria, Australia. We calculated age- and sex-adjusted odds ratios for socio-environmental, host, and behavioral factors associated with BU by using conditional logistic regression. Odds of BU were >2-fold for persons with diabetes mellitus and persons working outdoors who had soil contact in BU-endemic areas (compared with indoor work) but were lower among persons who had bacillus Calmette-Guérin vaccinations. BU was associated with increasing numbers of possums and with ponds and bore water use at residences. Using insect repellent, covering arms and legs outdoors, and immediately washing wounds were protective; undertaking multiple protective behaviors was associated with the lowest odds of BU. Skin hygiene/protection behaviors and previous bacillus Calmette-Guérin vaccination might provide protection against BU in BU-endemic areas.