

PRODUCCIÓN CIENTÍFICA DE LOS INVESTIGADORES DEL INS

DICIEMBRE-2015

REVISTAS INTERNACIONALES

1. González-Alcaide G, Park J, **Huamani C¹**, Belinchón I, Ramos JM. **Evolution of Cooperation Patterns in Psoriasis Research: Co-Authorship Network Analysis of Papers in Medline (1942-2013)**. PLoS ONE. 2015 Dec;10(12):e0144837. Available from: <http://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0144837>

ABSTRACT

Background: Although researchers have worked in collaboration since the origins of modern science and the publication of the first scientific journals in the eighteenth century, this phenomenon has acquired exceptional importance in the last several decades. Since the mid-twentieth century, new knowledge has been generated from within an ever-growing network of investigators, working cooperatively in research groups across countries and institutions. Cooperation is a crucial determinant of academic success. **Objective:** The aim of the present paper is to analyze the evolution of scientific collaboration at the micro level, with regard to the scientific production generated on psoriasis research.

Methods: A bibliographic search in the Medline database containing the MeSH terms "psoriasis" or "psoriatic arthritis" was carried out. The search results were limited to articles, reviews and letters. After identifying the co-authorships of documents on psoriasis indexed in the Medline database (1942-2013), various bibliometric indicators were obtained,

including the average number of authors per document and degree of multi-authorship over time. In addition, we performed a network analysis to study the evolution of certain features of the co-authorship network as a whole: average degree, size of the largest component, clustering coefficient, density and average distance. We also analyzed the evolution of the giant component to characterize the changing research patterns in the field, and we calculated social network indicators for the nodes, namely betweenness and closeness. **Results:** The main active research clusters in the area were identified, along with their authors of reference. Our analysis of 28,670 documents sheds light on different aspects related to the evolution of scientific collaboration in the field, including the progressive increase in the mean number of co-authors (which stood at 5.17 in the 2004-2013 decade), and the rise in multi-authored papers signed by many different authors (in the same decade, 25.77% of the documents had between 6 and 9 co-authors, and 10.28% had 10 or more). With regard to the network indicators, the average degree gradually increased up to 10.97 in the study period. The percentage of authors pertaining to the largest component also rose to 73.02% of the authors. The clustering coefficient, on the other hand, remained stable throughout the entire 70-year period, with values hovering around 0.9. Finally, the average distance peaked in the decades 1974-1983 (8.29) and 1984-2003 (8.12) then fell over the next two decades, down to 5.25 in 2004-2013. The construction of the co-authorship network (threshold of collaboration ≥ 10 co-authored works) revealed a giant component of 161 researchers, containing 6 highly cohesive sub-components. **Conclusions:** Our study reveals the existence of a growing research community in which collaboration is increasingly important. We can highlight an essential feature associated with scientific collaboration: multi-authored papers, with growing numbers of collaborators contributing

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to them, are becoming more and more common, therefore the formation of research groups of increasing depth (specialization) and breadth (multidisciplinarity) is now a cornerstone of research success.

2. Tello-Velásquez JR, Díaz-Llanes BE, Mezones-Holguín E, Rodríguez-Morales AJ, **Humani C²**, Hernández AV, et al. **[Poor quality of sleep associated with low adherence to highly active antiretroviral therapy in Peruvian patients with HIV/AIDS]**. *Cad Saude Publica*. 2015 May;31(5):989-1002. Available from: <http://www.scielo.br/pdf/csp/v31n5/0102-311X-csp-31-5-0989.pdf>

ABSTRACT

This cross-sectional study analyzed the association between poor quality of sleep and adherence to highly active antiretroviral therapy (HAART) in 389 Peruvian patients with HIV/AIDS. Poor quality of sleep was measured with the Pittsburgh Sleep Quality Index (PSQI) and adherence with the CEAT-VIH (Peruvian adaptation). A Poisson generalized linear model with robust standard errors was used to estimate prevalence ratios and 95%CI. A crude model showed that mild, moderate, and severe poor quality of sleep were associated with inadequate treatment adherence. In the adjusted model for variables associated in the bivariate analysis or variables theoretically associated with adherence, only moderate/severe poor quality of sleep remained associated (PR = 1.34, 95%CI: 1.17-1.54; and PR = 1.34, 95%CI: 1.16-1.57, respectively). The study concluded that moderate/severe poor quality of sleep was independently associated with adherence to HAART. Assessing quality of sleep may be helpful in the comprehensive evaluation of HIV patients.

3. Durand LO, Cheng P-Y, Palekar R, Clara W, Jara J, Cerpa M, **Gutierrez V³**, et al. **Timing of Influenza Epidemics and Vaccines in the American Tropics, 2002-2008, 2011-**

2014. *Influenza Other Respir Viruses*. 2015 Dec. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/irv.12371/abstract>

ABSTRACT

Background: Influenza-associated illness results in increased morbidity and mortality in the Americas. These effects can be mitigated with an appropriately chosen and timed influenza vaccination campaign. To provide guidance in choosing the most suitable vaccine formulation and timing of administration, it is necessary to understand the timing of influenza seasonal epidemics. **Objectives:** Our main objective was to determine if influenza occurs in seasonal patterns in the American tropics, and when these patterns occurred. **Methods:** Publicly available, monthly seasonal influenza data from the Pan American Health Organization and WHO, from countries in the American tropics were obtained during 2002-2008 and 2011-2014 (excluding unseasonal pandemic activity during 2009-2010). For each country, we calculated the monthly proportion of samples that tested positive for influenza. We applied the monthly proportion data to a logistic regression model for each country. **Results:** We analyzed 2002-2008 and 2011-2014 influenza surveillance data from the American tropics and identified 13 (81%) of 16 countries with influenza epidemics that, on average, started during May and lasted 4 months. **Conclusions:** The majority of countries in the American tropics have seasonal epidemics that start in May. Officials in these countries should consider the impact of vaccinating persons during April with the Southern Hemisphere formulation.

4. Patel NB, Tito RY, Obregón-Tito AJ, O'Neal L, **Trujillo-Villaroel O⁴**, **Marin-Reyes L⁵**, et al. ***Ezakiella peruensis* gen. nov., sp. nov. isolated from human fecal sample from a coastal traditional community in Peru.** *Anaerobe*. 2015 Apr;32:43-8. Available from: <http://www.sciencedirect.com/science/article/pii/S1075996414001760>

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ABSTRACT

A novel Gram-stain positive, non-motile, non-sporeforming coccus-shaped, obligately anaerobic bacterium was isolated from a fecal sample of an individual residing in a traditional Peruvian community. The organism was characterized using biochemical, chemotaxonomic and phylogenetic methods. Comparative 16S rRNA gene sequence analyses and phenotypic characteristics demonstrated that the organism was biochemically and phenotypically related, but distinct, from a group of organisms referred to as the Gram-stain positive anaerobic cocci (GPAC). The major cellular fatty acids of the novel isolate were determined to be C16:0 (18.3%), C18:1 ω 9c (39.8%), C18:2 ω 6,9c/C18:0 ANTE (13.2%). Fermentation end products from PYG are acetate and formate. Cell-wall peptidoglycan was found to be A4 α (L-Lys-L-Ala-L-Glu) and the G + C content was determined to be 38.4 mol%. Based on the phenotypic, chemotaxonomic, and phylogenetic results, *Ezakiella peruensis* gen. nov., sp. nov., is now proposed. The type strain is M6.X2T (DSM 27367T = NBRC 109957 T = CCUG 64571T).

REVISTAS NACIONALES

5. Tarqui-Mamani C⁶, Sanchez-Abanto J⁷, Álvarez-Dongo D⁸, Espinoza-Oriundo P⁹, Jordán-Lechuga T¹⁰. **Prevalencia de anemia y factores asociados en adultos mayores peruanos.** Rev Peru Med Exp Salud Publica. 2015 Dec; 32(4):687-92. Disponible en: <http://www.rpmesp.ins.gob.pe/index.php/rpmesp/article/view/1759/1677>

RESUMEN

Objetivos. Determinar la prevalencia de anemia y factores asociados en los adultos mayores del Perú. **Materiales y métodos.** Se realizó un estudio transversal durante el año 2011. El muestreo fue probabilístico, estratificado y multietápico. La muestra de viviendas fue 5792 y se incluyó 2172 adultos mayores. Se definió anemia como hemoglobina <13,0 g/dL en hombres y <12,0 g/dL en mujeres. El estado nutricional se evaluó mediante el IMC clasificándose como delgadez (IMC \leq 23,0), normal (IMC>23 a <28), sobrepeso (IMC \geq 28 a <32,0) y obesidad (IMC \geq 32). El análisis estadístico se realizó por muestras complejas y se ajustó por factor de ponderación. Se calcularon las medias, proporciones, chi cuadrado y regresión logística. **Resultados.** El promedio de hemoglobina fue 13,4 \pm 1,6 g/dL. La prevalencia de anemia fue 23,3% (Leve: 17,1%; moderada: 5,7% y severa: 0,5%). La edad de 70 a 79 años (OR 1,5; IC 95%: 1,1-2,0), >80 años (OR 2,1; IC 95%: 1,4-3,0) y la delgadez (OR 1,7; IC 95%:1,2-2,3) se asociaron con la anemia. Los departamentos con mayor prevalencia de anemia fueron Ayacucho (57,6%), Ancash (40,1%), Lambayeque (37,7%) y Apurímac (36,9%). **Conclusiones.** Aproximadamente la cuarta parte de los adultos mayores tuvieron anemia, siendo más predominante en los analfabetos, procedentes de áreas rurales y pobres. La mayor edad y la delgadez se asocian con la presencia de anemia en los adultos mayores peruanos.

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ENERO-2016

REVISTAS INTERNACIONALES

1. Kato H, Cáceres AG¹¹, Hashiguchi Y. **First Evidence of a Hybrid of *Leishmania (Viannia) braziliensis/L. (V.) peruviana* DNA Detected from the Phlebotomine Sand Fly *Lutzomyia tejadai* in Peru.** PLoS Negl Trop Dis. 2016 Jan;10(1):e0004336. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4703407/>

ABSTRACT

The natural infection of sand flies by *Leishmania* was examined in the Department of Huánuco of Peru, where

cutaneous leishmaniasis caused by a hybrid of *Leishmania (Viannia) braziliensis/L. (V.) peruviana* is endemic. A total of 2,997 female sand flies were captured by CDC light traps and Shannon traps, of which 2,931 and 66 flies were identified as *Lutzomyia tejadai* and *Lu. fischeri*, respectively. Using crude DNA extracted from individual sand flies as a template, *Leishmania* DNA was detected from one *Lu. tejadai*. The parasite species was identified as a hybrid of *L. (V.) braziliensis/L. (V.) peruviana* on the basis of cytochrome *b* and mannose phosphate isomerase gene analyses. The result suggested that *Lu. tejadai* is responsible for the transmission of the hybrid *Leishmania* circulating in this area.

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FEBRERO-2016

REVISTAS INTERNACIONALES

1. Nzelu CO, Cáceres AG¹², Guerrero-Quincho S, Tineo-Villafuerte E, Rodríguez -Delfín L, Mimori T, *et al.* **A rapid molecular diagnosis of cutaneous leishmaniasis by colorimetric malachite green-loop-mediated isothermal amplification (LAMP) combined with an FTA card as a direct sampling tool.** *Acta Tropica.* 2016 Jan;153:116-9. Available from: <http://www.sciencedirect.com/science/article/pii/S0001706X15301364>

ABSTRACT

Leishmaniasis remains one of the world's most neglected diseases, and early detection of the infectious agent, especially in developing countries, will require a simple and rapid test. In this study, we established a quick, one-step, single-tube, highly sensitive loop-mediated isothermal amplification (LAMP) assay for rapid detection of *Leishmania* DNA from tissue materials spotted on an FTA card. An FTA-LAMP with pre-added malachite green was performed at 64°C for 60min using a heating block and/or water bath and DNA amplification was detected immediately after incubation. The LAMP assay had high detection sensitivity down to a level of 0.01 parasites per µl. The field- and clinic-applicability of the colorimetric FTA-LAMP assay was demonstrated with 122 clinical samples collected from patients suspected of having cutaneous leishmaniasis in Peru, from which 71 positives were detected. The LAMP assay in combination with an

FTA card described here is rapid and sensitive, as well as simple to perform, and has great potential usefulness for diagnosis and surveillance of leishmaniasis in endemic areas.

2. Alarco J¹³, Álvarez-Andrade E, Arroyo-Hernández¹⁴ H. [Gender differences in Peruvian researchers according to Google Scholar, 2015]. *Gac Sanit.* 2016 Mar-Apr;30(2):160. Available from: http://www.ncbi.nlm.nih.gov/pubmed/?term=Alarco%20JJ%5BAuthor%5D&cauthor=true&cauthor_uid=26832856
3. Velásquez GE, Cegielski JP, Murray MB, Yagui MJA¹⁵, Asencios LL¹⁶, Bayona JN, *et al.* **Impact of HIV on mortality among patients treated for tuberculosis in Lima, Peru: a prospective cohort study.** *BMC Infect Dis.* 2016;16(1):45. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4736097/>

ABSTRACT

Background: Human immunodeficiency virus (HIV)-associated tuberculosis deaths have decreased worldwide over the past decade. We sought to evaluate the effect of HIV status on tuberculosis mortality among patients undergoing treatment for tuberculosis in Lima, Peru, a low HIV prevalence setting. **Methods:** We conducted a prospective cohort study of patients treated for tuberculosis between 2005 and 2008 in two adjacent health regions in Lima, Peru (Lima Ciudad and Lima Este). We constructed a multivariate Cox proportional hazards model to evaluate the effect of HIV status on mortality during tuberculosis treatment. **Results:** Of 1701 participants treated for

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tuberculosis, 136 (8.0%) died during tuberculosis treatment. HIV-positive patients constituted 11.0% of the cohort and contributed to 34.6% of all deaths. HIV-positive patients were significantly more likely to die (25.1 vs. 5.9%, $P < 0.001$) and less likely to be cured (28.3 vs. 39.4%, $P = 0.003$). On multivariate analysis, positive HIV status (hazard ratio [HR]=6.06; 95% confidence interval [CI], 3.96–9.27), unemployment (HR=2.24; 95% CI, 1.55–3.25), and sputum acid-fast bacilli smear positivity (HR=1.91; 95% CI, 1.10–3.31) were significantly associated with a higher hazard of death. **Conclusions:** We demonstrate that positive HIV status was a strong predictor of mortality among patients treated for tuberculosis in the early years after Peru started providing free antiretroviral therapy. As HIV diagnosis and antiretroviral therapy provision are more widely implemented for tuberculosis patients in Peru, future operational research should document the changing profile of HIV-associated tuberculosis mortality.

- Durand LO, Cheng P-Y, Palekar R, Clara W, Jara J, Cerpa M, **Gutierrez V¹⁷**, *et al.* **Timing of Influenza Epidemics and Vaccines in the American Tropics, 2002-2008, 2011-2014.** *Influenza Other Respir Viruses.* 2015 Dec. Available from: <http://onlinelibrary.wiley.com/doi/10.1111/irv.12371/abstract>

ABSTRACT

Background: Influenza-associated illness results in increased morbidity and mortality in the Americas. These effects can be mitigated with an appropriately chosen and timed influenza vaccination campaign. To provide guidance in choosing the most suitable vaccine formulation and timing of administration, it is necessary to understand the timing of influenza seasonal epidemics. **Objectives:** Our main objective was to determine if influenza occurs in seasonal patterns in the American tropics, and when these patterns occurred. **Methods:** Publicly available, monthly

seasonal influenza data from the Pan American Health Organization and WHO, from countries in the American tropics were obtained during 2002-2008 and 2011-2014 (excluding unseasonal pandemic activity during 2009-2010). For each country, we calculated the monthly proportion of samples that tested positive for influenza. We applied the monthly proportion data to a logistic regression model for each country. **Results:** We analyzed 2002-2008 and 2011-2014 influenza surveillance data from the American tropics and identified 13 (81%) of 16 countries with influenza epidemics that, on average, started during May and lasted 4 months. **Conclusions:** The majority of countries in the American tropics have seasonal epidemics that start in May. Officials in these countries should consider the impact of vaccinating persons during April with the Southern Hemisphere formulation.

- Elachola H, **Gozzer E¹⁸**, Zhuo J, Memish ZA. **A crucial time for public health preparedness: Zika virus and the 2016 Olympics, Umrah, and Hajj.** *Lancet.* 13 de febrero de 2016;387(10019):630-2. Available from: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)00274-9/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)00274-9/abstract)
- Liebman KA, **Pinto J¹⁹**, **Valle J²⁰**, **Palomino M²¹**, Vizcaino L, Brogdon W, *et al.* **Novel mutations on the ace-1 gene of the malaria vector *Anopheles albimanus* provide evidence for balancing selection in an area of high insecticide resistance in Peru.** *Malar J.* 2015;14:74. Available from: <http://malariajournal.biomedcentral.com/articles/10.1186/s12936-015-0599-1>

ABSTRACT

Background: Resistance to multiple classes of insecticides has been detected in the malaria vector *Anopheles albimanus* in northwest Peru. Acetylcholinesterase (AChE) insensitivity has

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previously been associated with resistance to organophosphate (OP) and carbamate (CA) insecticides in arthropods. A single point mutation on the *ace-1* gene (G119S) associated with resistance to OPs and CAs has been described previously in four anopheline species, but not in field-collected *An. albimanus*. The present study aimed to characterize the role of *ace-1* in conferring resistance to both OPs and CAs in the *An. albimanus* population in Tumbes, Peru. **Methods:** The frequency and intensity of resistance to OPs and CAs was quantified through bioassays of female *An. albimanus* collected between 2012 and 2014, and the presence of insensitive AChE was confirmed using biochemical assays. A portion of the *ace-1* gene flanking codon 119 was amplified and sequenced from individuals used in the bioassays and biochemical assays, as well as from historical samples collected in 2008. Statistical analyses were conducted to determine: (1) associations between genotype and AChE insensitivity; and, (2) associations between genotype and resistance phenotype. **Results:** After confirming high levels of resistance to fenitrothion, malathion, and bendiocarb through bioassays, two novel polymorphisms were identified at the first and second loci of codon 119, with all individuals from the 2012–2014 collections being heterozygous at the first base (G/T) and either heterozygous (G/C) or homozygous mutants (C/C) at the second base. Based on sequence data from historical samples, these mutations arose prior to 2008, but became fixed in the population between 2008 and 2012. Homozygotes at the second locus had significantly higher levels of AChE insensitivity than heterozygotes ($p < 0.05$). Individuals phenotypically susceptible to OPs and CAs were more likely to be heterozygous at the second locus ($p < 0.01$). Cloning identified four individuals each containing three distinct genotypes, suggesting that a duplication of the *ace-1* gene may have occurred. **Conclusions:** The occurrence of heterozygotes at two loci and the presence of three genotypes in four individuals suggest that balancing selection could be maintaining OP and CA resistance in this population, while minimizing associated fitness costs.

7. Torres-Román JS, Zumaeta-Cabrera C, Arroyo-Hernández H²². [Asociación entre donación y trasplante de órganos en Latinoamérica]. Salud Publica Mex. febrero de 2016;58(1):1-2. Available from: <http://www.scielo.org.mx/pdf/spm/v58n1/v58n1a1.pdf>
8. Minaya G²³. Relevant ethical consideration in research with indigenous people in Peru. J Community Genet. 2016 Feb. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26922078>
9. González-Alcaide G, Ramos JM, Huamani C²³, Mendoza C de, Soriano V. Human T-Lymphotropic virus 1 (HTLV-1) and human T-Lymphotropic virus 2 (HTLV-2): Geographical research trends and collaboration networks (1989-2012). Rev Inst Med Trop Sao Paulo. 2016;58. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0036-46652016005000210&lng=en&nrm=iso&tng=en

ABSTRACT

Publications are often used as a measure of research work success. Human T-lymphotropic virus (HTLV) type 1 and 2 are human retroviruses, which were discovered in the early 1980s, and it is estimated that 15-20 million people are infected worldwide. This article describes a bibliometric review and a coauthorship network analysis of literature on HTLV indexed in PubMed in a 24-year period. A total of 7,564 documents were retrieved, showing a decrease in the number of documents from 1996 to 2007. HTLV manuscripts were published in 1,074 journals. Japan and USA were the countries with the highest contribution in this field (61%) followed by France (8%). Production ranking changed when the number of publications was normalized by population (Dominican Republic and Japan), by gross domestic

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product (Guinea-Bissau and Gambia), and by gross national income per capita (Brazil and Japan). The present study has shed light on some of the defining features of scientific collaboration performed by HTLV research community, such as the existence of core researchers responsible for articulating the development of research in the area, facilitating wider collaborative relationships and the integration of new authors in the research groups.

10. Patel NB, Tito RY, Obregón-Tito AJ, O'Neal L, **Trujillo-Villaroel O²⁴, Marín-Reyes L²⁵, et al.** ***Peptoniphilus catoniae* sp. nov. isolated from human fecal sample from a coastal traditional community in Peru.** Int J Syst Evol Microbiol. 2016 Feb 23. Available from: <http://ijs.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.000985#tab2>

ABSTRACT

A novel Gram-positive staining, coccus-shaped, non-motile, non-sporeforming obligately anaerobic bacterium was isolated from a fecal sample obtained from an individual in a traditional community located off the southern coast of Peru. Comparative 16S rRNA gene sequence analysis showed the novel bacterium to belong to the genus *Peptoniphilus* but showed no particular relationship with any other species, demonstrating less than 91% 16S rRNA sequence similarity with all other members of the genus. The major cellular fatty acids of the novel isolate were determined to be C16:0 and C18:1 ω 9c. The G+C content was 34.4 mol%. End products of metabolism from PYG were determined to be acetate and butyrate. Based on the phenotypic, chemotaxonomic, and phylogenetic results the organism is a member of the genus *Peptoniphilus* for which the name *Peptoniphilus catoniae* sp. nov., is now proposed. The type strain is M6.X2DT (DSM 29874T = CCUG 66798T).