

Curriculum Vitae: Edgardo Moreno

Profesor in Cellular Biology, Veterinary School of the National University, Costa Rica
Lic. Microbiología y Química Clínica, Universidad de Costa Rica, 1975
MSc studies , Universidad de Costa Rica, 1976
Ph.D. Veterinary Sciences, University of Wisconsin-Madison, USA, 1979.
Postdoctoral training, Max Planck Institute for Immunobiology, Germany 1985-1986
Sabbatical, Center for Immunology, Luminy, Marseille (CIML), France 1987-1988
Sabbatical, Planck Institute for Infectious Diseases, Germany 2002-2003

Edgardo Moreno's research concentrates in the understanding of the immunology, pathobiology and epidemiology of brucellosis. His main studies are devoted to the mechanisms involved in *Brucella* intracellular life, virulence, vaccine development, adaptive and innate immunity in brucellosis, the diagnosis of the disease and in the evolution and taxonomy of the genus *Brucella*. From 1991 to 1999 Dr. Moreno acted as Dean of Student Affairs of the Graduate Programme in Biomedical Sciences between the Central American universities and the Karolinska Institute in Sweden. The Programme, designed to avoid "brain drain" in Central America, successfully graduated a total of 40 MSc. and 20 PhD.s and generated close to 130 publications in international journals. From 1999 to 2003 Dr. Moreno was the founder and the first General Coordinator of the Network for Research and Training in Tropical Diseases in Central America (NeTropica). The function of this network is to give small grants and support courses in Biomedical Sciences and to promote the formation and growth of a competitive "critical mass" of high quality regional investigators. He has served as consultant of several organizations, including Swedish International Development Agency, Organization of Tropical Studies, Interamerican Development Bank National Institute of Health (NIH) USA, Caprion Pharmaceuticals. Dr. Moreno was the General Coordinator of the Health Section of the Iberoamerican Program for Science and Technology Development (CYTED) from 2006-2008 and the Director of the Tropical Disease Research Program (1990-2005), Presently he is the Vice-president of the National Academy of Sciences of Costa Rica. Professor at the Graduate School of the University of Costa Rica and appointed as invited Professor by Louisiana State University in New Orleans. During his academic career he has obtained grants from different sources, has been the tutor of 36 students from various scientific disciplines and has participated in many undergraduate and graduate courses in the public Universities of Central America. He has over 135 scientific publications, and close to 30 assays devoted to the promotion of scientific knowledge.

Honors

-Year- -Institution-

1981-1991 Research Fellow appointed by the National Council for Science and Technology, (CONICIT) of Costa Rica
1984 Honorable Mention for Scientific Achievements, United Nations Educational and Cultural Organization (UNESCO) and International Council of Scientific Union (ICSU)
1985 Honorary recognition for Scientific Achievements, University of Costa Rica
1987 ITC Award for Scientific Assays, Instituto Tecnológico de Costa Rica, Cartago, Costa Rica

1988 Honorable Mention for Research Activities, Scientific Committee of the Organization of American States (UN/OEA)
2000 Award from The Charles A. and Anne Morrow & Lindbergh Foundation, USA.
2002 Member of the National Academy of Sciences, Costa Rica
2003 Award from the Florida Ice & Farm Award
2007 Vice-president of the National Academy of Sciences, Costa Rica

Advisory board activities

Plos One Academic Editor.

Reviewer for: Proceedings of the National Academy of Sciences USA, Cellular Microbiology, Molecular Microbiology, Infection & Immunity, Journal of Bacteriology, PloS One, Leukocyte Research, Clinical and Vaccine Immunology, Microbial Pathogenesis, Microbes and Infection, Veterinary Microbiology, Vaccine, Revista Latinoamericana de Microbiología, Revista de Biología Tropical
Member of the Evaluating Committee for grants, National Institutes of Health (NIH, Washington, DC, USA)

Publications last five years

- Lapaque, N., I. Moriyon, **E. Moreno** and J-P. Gorvel. 2005. *Brucella* lipopolysaccharide acts as a virulence factor. Curr. Opin. Microbiol. 8:60-66.
- Arellano-Reynoso, B., N. Lapaque, S. Salcedo, G. Briones, A. E. Ciocchini, R. Ugalde, **E. Moreno**, I. Moriyón, and J-P. Gorvel. 2005. The cyclic β -1,2-glucan is a *Brucella* virulence factor required for intracellular survival. Nature Immunol. 6: 618-625.
- Santamaría, C., S. Larios, Y. Angulo, J. Pizarro, J-P Gorvel, **E. Moreno**, B. Lomonte. 2005. Antimicrobial activity of myotoxic phospholipases A2 from crotalid snake venoms and synthetic peptide variants derived from their C-terminal region. Toxicon 45:807-815.
- Santamaría, C., S. Larios, J. Pizarro-Cerdá, J-P. Gorvel, M. Bokarewa, B. Lomonte, and **E. Moreno**. 2005. Bactericidal and anti-endotoxic properties of short cationic peptides derived from *Bothrops asper* myotoxin II, a snake venom Lys49 phospholipase A2. Antimicrob. Agents Chemother. 49:1340-1345.
- Weiss, D. S., K. Takeda, S. Akira, A. Zychlinsky and **E. Moreno**. 2005. MyD88, but not TLR4 and TLR2, is required for efficient clearance of *Brucella abortus*. Infect. Immun. 73:5137-5143.
- Moreno, E.** 2005. Universidades y “enseñaderos” Revista del Colegio de Microbiólogos y Químicos Clínicos de Costa Rica 11: 16.
- Manterola, L., I. Moriyón, **E. Moreno**, A. Sola-Landa, D. S. Weiss, M.H.J. Koch, J. Howe, K. Brandenburg, I. López-Goñi. 2005. The lipopolysaccharide of *Brucella abortus* *bvrS/bvrR* mutants contains lipid A modifications and has higher affinity for bactericidal cationic peptides. J. Bacteriol. 187:5631-5639.
- Moreno, E.**, and I. Moriyón. 2006. The genus *Brucella*. In Dworkin, M., S. Falkow, E. Rosenberg, K-H Schleifer, and E. Stackebrand. (eds). Vol. 5. Part 1, section 3.1. The Prokaryotes: Springer-Verlag, New York, pp315-456.
- Lapaque, N., F. Forquet, C. de Chastellier, Z. Mishal, G. Jolly, **E. Moreno**, I. Moriyon, J. E. Heuser, H-T. He and J-P. Gorvel. 2006. Characterization of *Brucella abortus* lipopolysaccharide macrodomains as mega rafts. Cell. Microbiol. 8:197-206.
- Lamontagne, J. H. Butler, E. Chaves-Olarte, J. Hunter, M. Schirm, C. Paquet, M. Tian, P. Kearney, L. Hamaidi, D. Chelsky, I. Moriyon, **E. Moreno**, and E. Paramithiotis. 2007.

- Extensive cell envelope modulation is associated with virulence in *Brucella abortus*. J. Proteom. Res. 6:1519-1529.
- Barquero-Calvo, E., E. Chaves-Olarte, D. S. Weiss, C. Guzmán-Verri, C. Chacón-Díaz, A. Rucavado, I. Moriyón and **E. Moreno**. 2007. *Brucella abortus* uses a stealthy strategy to avoid activation of the innate immune system during the onset of infection. PLoS One 2(7): e631. doi:10.1371/journal.pone.0000631.
- Manterola, L., Guzman-Verri, C., Chaves-Olarte, E., Barquero-Calvo, E., de Miguel, M. J., Moriyon, I., Grilló., M. J., Lopez-Goni, I., **Moreno, E.** 2007. The BvrR/BvrS-controlled outer membrane proteins Omp3a and Omp3b are not essential for *Brucella abortus* virulence. Infect Immun. 75:4867-4874.
- Moreno, E.**, L. Lomonte, and J. M. Gutiérrez. 2008. Computational Biology in Costa Rica: The role of a small country in the global context of bioinformatics. PloS Comput. Biol 4(3): e1000040. doi:10.1371/journal.pcbi.1000040.
- Moreno, E.**, and J.M. Gutierrez. 2008. Ten Simple Rules for Aspiring Scientists in a Low-Income Country. PLoS Comput Biol 4(5): e1000024. doi:10.1371.
- Hernández-Mora, G., R. González-Barrientos, J-A. Morales, E. Chaves-Olarte, . C. Guzmán-Verri, E. Barquero-Calvo, M-J. De-Miguel, C-M. Marín, J-M Blasco, **E. Moreno**. 2008. Neurobrucellosis in stranded dolphins, Costa Rica. Emerging Infect. Dis 14:1430-1433.
- Gorvel, J.P., **E. Moreno** and I. Moriyón. 2009. Is *Brucella* and enteric pathogen? Nature Rev. Microbiol. 7:250.
- Lamontagne, J., Forest, A., Marazzo, E., Denis, F., Butler, H., Michaud, J-F., Boucher, L., Pedro, I., Villeneuve, A., Sitnikov, D., Trudel, K., Nassif, N., Boudjelti, D., Tomaki, F., Chaves-Olarte, E., Guzmán-Verri, C., Brunet, S., Cote -Martin, A., Hunter, J., **Moreno, E.**, and Paramithiotis, E. 2009. Intracellular Adaptation of *Brucella abortus*. 2009. J. Prot. Res. 8:1594-1609.
- Hernández-Mora G., C.A. Manire, R. González-Barrientos, E. Barquero-Calvo, C. Guzmán-Verri, L. Staggs, R. Thompson, E.Chaves-Olarte, **E. Moreno**. 2009. Serological diagnosis of *Brucella* infections in odontocetes. Clin. Vacc. Immunol. 16:906–915.
- Kalde, M., **E. Moreno**, J.-P. Gorvel. 2009. *Brucella*. In E. Schaible and A. Haas (eds) Intracellular Niches of Microbes - A Pathogens Guide through the Host Cell, Wiley-VCH. Pp 255-272.
- Barquero-Calvo, E., R.Conde-Alvarez, C. Chacón-Díaz, L. Quesada-Lobo, A. Martirosyan, C.Guzmán-Verri, M. Iriarte, M. Mancek-Keber, R.Jerala⁵, J-P. Gorvel, I. Moriyón, **E. Moreno** and E. Chaves-Olarte. 2009. The differential interaction of *Brucella* and *Ochrobactrum* with innate immunity reveals traits related to the evolution of stealthy pathogens. Plos One 4: e5893.
- González-Barrientos, R, J.-A. Morales, G. Hernández-Mora, E. Barquero-Calvo, C. Guzmán-Verri, E. Chaves-Olarte and **E. Moreno**. 2010. Pathology of Striped Dolphins (*Stenella coeruleoalba*) Infected with *Brucella ceti*. J Comp. Pathol. 142:347-352.
- Kalde, M., **E. Moreno**, J.-P. Gorvel. 2009. *Brucella*. In E. Schaible and A. Haas (eds) Intracellular Niches of Microbes - A Pathogens Guide through the Host Cell, Wiley-VCH. Pp 255-272.
- Lomonte, B., Y.Angulo and **E. Moreno**. 2010. Synthetic peptides derived from the C-terminal region of Lys49 phospholipase A2 homologues from Viperidae snake venoms: biomimetic activities and potential applications. Curr. Pharm. Design. In press
- Lamontagne, J., M. Béland, A. Forest, A. Côté-Martin, N. Nassif, F. Tomaki, I. Moriyón, **E. Moreno, E.** Paramithiotis. 2010. Proteomics-Based Confirmation of Protein Expression and Correction of Annotation Errors in the *Brucella abortus* genome. BioMed Central Series (in press).