


BIOGRAPHICAL SKETCH

NAME DANIELA F. HOZBOR		POSITION TITLE Professor at the National University of La Plata (UNLP) Principal Scientific Researcher at CONICET
COMMONS USER NAME (credential, e.g., agency login) DHOZBOR		

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
National University of La Plata (UNLP), Argentina	B.Sc.	1981-1986	Biochemistry
National University of La Plata (UNLP), Argentina	Ph.D.	1988-1993	Biochemical Sciences
Pasteur Institute, Paris, France	Postdoc	1995-1996	Molecular Microbiology

A. Personal Statement

I am a Professor at the UNLP, Argentina; Group Leader and Head of National Reference Laboratory of pertussis in Argentina; Member of the Steering Committee of the Global Pertussis Initiative. I have been performing research on Bordetella for over 28 years, including studies on antigen secretion, host response, epidemiology, diagnosis, and vaccine development. In the last years we have published extensively on vaccine development. The lines of research are granted by the Ministry of Science, Technology and Innovation, and the Ministry of Health. My experience is in microbiology, molecular and systems biology, bacterial diagnostics, epidemiology, and vaccinology. I have published 93 articles, 1 article in teaching, 7 book chapters, 2 national patents (1 accepted, 1 pending), 1 international patent (granted in US, pending in other countries), 1 manual of procedures for diagnosis of Bordetella pertussis, several outreach work and 142 presentations at national and international conferences. I have supervised as director or co-director 14 PhD theses and 2 MSc. Four additional PhD thesis supervisions are ongoing. I am academic editor of PlosOne, Frontiers in Immunology and BMC Infectious Diseases, and acted as reviewer for numerous scientific articles. I have also revised a great number of national and international research projects. I have made numerous technical transfers to the public sectors, especially in human health area. I have supervised outreach projects at the Faculty of Exact Sciences (FCE), UNLP.

B. Positions and Honors

Current academic position.

Full Professor. Area of Biotechnology and Molecular Biology. Department of Biological Sciences, FCE-UNLP.

Current research position.

Principal Researcher at CONICET, Argentina.

Head of National Reference Laboratory for Pertussis at the Institute of Biotechnology and Molecular Biology (IBBM), FCE-UNLP and CONICET.

Head of Bordetella Research Group (IBBM, FCE-UNLP and CONICET)

Principal Researcher of the project on national bacterial vaccine

Academic researcher of the project on COVID-19 vaccine development

Associate Editor of the Scientific Journal PLOS ONE.

Associate Editor of the Scientific Journal Frontiers in Immunology.

Associate Editor of the Scientific Journal BMC Infectious Diseases.

Other positions and recognitions:

Member of the Scientific Committee of the Global Pertussis Initiative.

Member of the Core Committee of the National Immunization Commission of the National Ministry of Health.

Member of the Vaccine Safety Committee of the Ministry of Health of the Province of Buenos Aires.

Coordinator of the Vaccinology Subcommittee of the Argentine Association of Microbiology.

Coordinator of the Institutional Committee for the Care and Use of Laboratory Animals or Experimentation (CICUAL).

Activities as reviewer

Reviewer for research journals: Acta Neuropathologica, Biocell, Current Microbiology, European Journal of Clinical Microbiology &

Infectious Diseases, FEMS Immunology & Medical Microbiology Journal of Emerging Infectious Diseases, Journal of Infection, Journal of Pediatric Infectious Diseases, PlosOne, Plos Pathogens, Revista Argentina de Microbiologia, Expert Review of Anti-infective Therapy, Expert Review of Vaccines, Toxicon, Frontiers, BMED, Biofouling, The Lancet, International Journal of Molecular Science and Vaccine.

Reviewer for research grants: National Agency for Promotion of Science and Technology (ANPCyT), Argentina, Commission of Scientific Research of the Province of Buenos Aires, Argentina, l'Agence Nationale de la Recherche (ANR), Secretary of University Policies, Ministry of Education (Argentina), and UNLP.

Awards

Best scientific work at Updates in Pediatric Clinics III. International Research Conference on Clinical Research, Epidemiology, and Quality of Care in Pediatrics and Perinatology. May 2003. La Plata. Argentina.

Title: *Bordetella pertussis* and *Bordetella bronchiseptica* from pediatric patients in Argentina, molecular characterization and epidemiologic importance.

Fingermann M, Fernández J, Sisti F, Llanos C, Rocca L, Gatti B, Rodriguez ME Hozbor D.

Best scientific work presented at the First General Microbiology Conference. IV CAMAYA-I MicroGen of the Argentine Association of Microbiology. April 11-13, 2018. Mar del Plata, Argentina.

Title: Immunization in neonates as a novel strategy against pertussis

Authors: Martin Aispuro, P., Bottero D., Gaillard ME and Hozbor D

Recognition on International Women's Day. I was honored as a distinguished woman of the city of La Plata, recognized for my contribution to the community. March 28, 2022, at the Municipal Golden Hall.

Konex Foundation Science and Technology Award – Area of Microbiology and Immunology 2023

Complete List of Published Work in MyBibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/browse/collection/56094544/?sort=date&direction=ascending>

C. Contributions to Science

Practically all my scientific work refers to studies on pertussis; in particular, on antigen secretion, host response, epidemiology, diagnosis, and vaccine development.

During my PhD work, I studied culture conditions that could increase the yield of the principal immunogens of *B. pertussis*

a. Effect of methyl-cyclodextrin on adenylate cyclase activity of *Bordetella pertussis*. Hozbor, D., Samo, A. and Yantorno, O. (1991) World Journal of Microbiology and Biotechnology 7:309-315. ISSN 0959-3993 Springer Netherlands

b. Release of lipopolysaccharide during *Bordetella pertussis* growth Hozbor, D., Rodriguez, M.E., Samo, A., Lagares, A. and Yantorno O. (1993) Research in Microbiology 144:201-209. ISSN 0923-2508. Elsevier

c. Effect of hydromechanical forces on the production of Filamentous haemagglutinin and Pertussis toxin of *Bordetella pertussis*. Rodriguez, M.E., Samo, A., Hozbor, D. and Yantorno, O. (1993) Journal of Industrial Microbiology 12:103-108. ISSN 1367-5435 Springer Berlin

d. Use of cyclodextrin as an agent to induce excretion of *Bordetella pertussis* antigens. Hozbor, D., Rodriguez, M.E. and Yantorno, O. (1994) FEMS Immunology and Medical Microbiology 9:117-124. ISSN 1574-695X Elsevier

During such period, I also worked on setting up assays to quantify and isolate immunogens and bacterial components of *B. pertussis*

a. Quantitation of adenylate cyclase of *Bordetella pertussis* by enzyme linked immunoabsorbent assay. Hozbor, D., Chirido, F., Rodriguez, M.E., Valverde, C. and Yantorno, O. (1995) Biologicals 23:279-284. ISSN 1045-1056 Elsevier

b. Rapid preparation of affinity-purified lipopolysaccharide samples for electrophoretic analysis. Valverde, Claudio, Daniela F. Hozbor and Antonio Lagares. (1997) Biotechniques 22(2): 230. ISSN 0736-6205

In my postdoc training at Pasteur Institut (Paris, France) under the guidance of Dr. Nicole Guiso, I developed a PCR test that enabled not only discriminative detection of three *Bordetella* species, *B. pertussis*, *B. parapertussis*, and *B. bronchiseptica*, but also specific detection of *B. bronchiseptica*.

Detection of *Bordetella bronchiseptica* by polymerase chain reaction. Daniela Hozbor, Françoise Fouque and Nicole Guiso. (1999) Research in Microbiology 150: 333-341 ISSN 0923-2508. Elsevier

Then, and based on the resurgence of pertussis in several countries, including Argentina, I worked on the implementation of a national surveillance network for the disease. In this way we could better define the situation of pertussis in our region and also identify the possible causes of the resurgence of the disease.

a. Differences of circulating *Bordetella pertussis* population in Argentina from the strain used in vaccine production. Fingermann M, Fernandez J, Sisti F, Rodriguez ME, Gatti B, Bottero D, Graieb A, Gaillard ME, Ayala SG, Mooi FR, Lopardo H, Hozbor D. Vaccine. 2006 24:3513-21. ISSN 0264-410X Elsevier

b- Pulse field gel electrophoresis, pertactin, pertussis toxin S1 subunit polymorphisms and surfaceome analysis of vaccine and clinical *Bordetella pertussis* strains Bottero D, Gaillard M, Fingermann M, Weltman G, Fernández J, Sisti F, Graieb A, Roberts R, Rico O, Ríos G, Regueira M, Binsztein N and Hozbor D. Clinical and Vaccine Immunology 2007. 14:1490-1498. ISSN 1556-6811

c. *Bordetella pertussis* polymorphism and pertussis vaccines. Guiso N and Hozbor D Clin Vaccine Immunol. 2008 15:394; author reply 394-5. ISSN 1556-6811

d. Pertussis Epidemiology in Argentina Trends Over 2004-2007 Hozbor D, Mooi F, Flores D, Weltman G, Bottero D, Fossati S, Lara C, Gaillard ME, Pianciola L, Zurita E, Fioriti A, Archuby D, Galas M, Binsztein N, Regueira M, Castuma C, Fingermann M, Graieb A. J Infect. 2009 59(4):225-31. ISSN: 0163-4453

e. Whooping cough: clinical and epidemiological characteristics of 20 confirmed cases of the Paediatric Hospital of Misiones province von Specht M, Grenon S, Tagliaferri P, López O, Regueira M, Fosatti S, Weltman G, Hozbor D. Arch Argent Pediatr. 2009 ;107:449-52. ISSN 0325-0075versión impresa
ISSN 1668-3501 (on-line)

d. Optimization of processing and storage of clinical samples to be used for the molecular diagnosis of pertussis. Pianciola L, Mazzeo M, Flores D, Hozbor D. Rev Argent Microbiol. 2010 ;42(2):108-13. ISSN 0325-7541, OCLC: 85449370

e The global pertussis initiative: Meeting report from the regional Latin America meeting, Costa Rica, 5-6 December, 2008. Ulloa-Gutierrez R, Hozbor D, Avila-Aguero ML, Caro J, König CH, Tan T, Plotkin S. Hum Vaccin. 2010 1;6(11). Print ISSN: 1554-8600 Online ISSN: 1554-8619

f.- Laboratory adaptation of *Bordetella pertussis* is associated with the loss of Type Three Secretion System functionality.

Gaillard ME, Bottero D, Castuma CE, Basile LA, Hozbor D. Infect Immun. 2011 Jul 5. [Epub ahead of print] Print ISSN: 0019-9567

g- A deep rough type structure in *Bordetella bronchiseptica* lipopolysaccharide modulates host immune responses Sisti F., Fernández J., Higgins, S., Cassabuono A., Couto A., Mills K and Hozbor D. Microbiology and Immunology. 2011. 55:847-54. doi: 10.1111/j.1348-0421.2011.00395.x. ISSN: 1348-0421

h- Genotypic and phenotypic characterization of *Bordetella pertussis* strains used in different vaccine formulations in Latin America

Bottero, Daniela; Gaillard, María; Basile, Laura; Fritz, Mariana; Hozbor, Daniela. J Appl Microbiol. 2012 Jun;112(6):1266-76. doi: 10.1111/j.1365-2672.2012.05299.x. Epub 2012 Apr 25. ISSN: 1365-2672

i- Global population structure and evolution of *Bordetella pertussis* and their relationship with vaccination.

Marieke J Bart , Dr. Simon R. Harris , Reza Advani , Yoshichika Arakawa , Daniela Bottero , Valérie Bouchez , Pamela Cassiday , Chuen-Sheue Chiang , Dr. Tine Dalby , Norman K Fry , María Emilia Gaillard , Marjolein van Gent , Nicole Guiso , Hans Hallander , Dr. Eric T Harvill , Qiushui He , Han GJ van der Heide , Kees Heuvelman , Daniela Hozbor , Dr. Kazunari Kamachi , Gennady I Karataev , Dr. Ruiting Lan , Dr. Anna Lutyńska , Ram P Maharjan , Prof. Jussi Mertsola , Dr. Tatsuo Miyamura , Sophie Octavia , Dr. Andrew Preston , Dr. Michael A. Quail , Dr. Vitali Sintchenko , Paola Stefanelli , Dr. Maria Lucia Tondella , Dr. Raymond S W Tsang , Yinghua Xu , Shu-Man Yao , Shumin Zhang , Dr. Frits R Mooi
MBio. 2014 Apr 22;5(2):e01074. doi: 10.1128/mBio.01074-14. Online ISSN: 2150-7511

j- Rare Detection of *Bordetella pertussis* Pertactin-Deficient Strains in Argentina.

Carrquiriborde F, Regidor V, Aispuro PM, Magali G, Bartel E, Bottero D, Hozbor D. Emerg Infect Dis. 2019 Nov;25(11):2048-2054. doi: 10.3201/eid2511.190329. ISSN: 1080-6059

I then worked in interdisciplinary scenario to develop a mathematical model of pertussis transmission. With this work we evaluated the effects of possible control strategies to mitigate the epidemiological situation of pertussis. The relevance of this work lies in the possibility of anticipating the collection and interpretation of epidemiological data that arise after the implementation of the strategy.

a. Modelling pertussis transmission to evaluate the effectiveness of an adolescent booster in Argentina

G. Fabricius, P. Bergero, M. Ormazabal, A. Maltz, D. Hozbor *Journal of Epidemiology and Infection* ISSN: 0950-2688 EISSN: 1469-4409. 2013 Apr;141(4):718-34. doi: 10.1017/S0950268812001380.

b. Assessment of pertussis vaccination strategies using a mathematical model of disease transmission.

Pesco P, Bergero P, Fabricius G, Hozbor D. *Arch Argent Pediatr*. 2013 Oct;111(5):377-83. doi: 10.1590/S0325-00752013000500004. ISSN 0325-0075 versión impresa ISSN 1668-3501

c. Modelling the effect of changes in vaccine effectiveness and transmission contact rates on pertussis epidemiology.

Pablo Pesco; Paula Bergero; Gabriel Fabricius; Daniela Hozbor. *Epidemics*. 2014 Jun;7:13-21. doi: 10.1016/j.epidem.2014.04.001. ISSN: 1755-4365

d. Mathematical modeling of delayed pertussis vaccination in infants.

P. Pesco, P. Bergero, G. Fabricius and D. Hozbor. *Vaccine* 2015 33(41):5475-80.. doi: 10.1016/j.vaccine.2015.07.005 ISSN: 0264-410X

e. Potential Impact of Changes in the Schedule for Primary DTP Immunization as Control Strategy for Pertussis.

Bergero PE, Fabricius G, Hozbor DF, Theeten H, Hens N. *Pediatr Infect Dis J*. 2017 .doi: 10.1097/INF.0000000000001752. ISSN: 0891-3668

f- Non-mandatory immunization and its potential impact on pertussis epidemiology.

Bergero PE, Fabricius G, Hozbor DF. *Arch Argent Pediatr*. 2018 Dec 1;116(6):418-425. doi: 10.5546/aap.2018.eng.418. English, Spanish

Maternal immunization has recently been recommended as a strategy to reduce the incidence in the groups of those most vulnerable to the disease, which are neonates and infants under 6 months of age. I addressed this topic with my team not only with the mathematical model but also with the animal mice model.

a. Pertussis Maternal Immunization: Narrowing the Knowledge Gaps on the Duration of Transferred Protective Immunity and on Vaccination Frequency.

María Emilia Gaillard, Daniela Bottero, María Eugenia Zurita, Francisco Carriquiriborde, Pablo Martín Aispuro, Erika Bartel, David Sabater-Martínez, María Sol Bravo, Celina Castuma and Daniela Flavia Hozbor* *Front. Immunol*. 2017. <https://doi.org/10.3389/fimmu.2017.01099>. ISSN 1664-3224

b. Prevalence of Pertussis Antibodies in Maternal Blood, Cord Serum, and Infants From Mothers With and Those Without Tdap Booster Vaccination During Pregnancy in Argentina.

Fallo AA, Neyro SE, Manonelles GV, Lara C, Hozbor D, Zintgraff J, Mazzeo S, Davison HE, González S, Zapulla E, Canle O, Huespe M, Galas M, López EL. *J Pediatric Infect Dis Soc*. 2016 Dec 30. pii: piw069. doi: 10.1093/jpids/piw069. ISSN 2048-7193

c. Pertussis epidemiology in Argentina: trends after the introduction of maternal immunization.

G. Fabricius, P. Martín Aispuro, P. Bergero, D. Bottero, M. Gabrielli and D. Hozbor. *Epidemiology and Infection*. 2018 May;146(7):858-866. doi: 10.1017/S0950268818000808.

e- Use of a Neonatal-Mouse Model to Characterize Vaccines and Strategies for Overcoming the High Susceptibility and Severity of Pertussis in Early Life.

Pablo Martín Aispuro, Nicolás Ambrosio, María Eugenia Zurita, María Emilia Gaillard, Daniela Bottero and Daniela Flavia Hozbor. *Frontiers in Microbiology* 11:723. DOI: 10.3389/fmicb.2020.00723

In recent years my work and that of my team has focused on understanding the local epidemiology of pertussis and the possible causes of its resurgence as well as designing a new vaccine against this disease. Regarding this last aspect, we have already designed a new acellular vaccine based on outer membrane vesicles of *B. pertussis* and we advanced significantly in the required preclinical studies. The detail of the publications during the last 3 years is presented below.

a. Characterization of the immune response induced by pertussis OMVs-based vaccine

Bottero D, Gaillard ME, Zurita ME, Moreno G, Sabater Martínez, Bartel E, Bravo S, Carriquiriborde F, Errea A, Castuma C, Rumbo M, Hozbor D. *Vaccine*. 2016 Jun 14;34(28):3303-9. doi: 10.1016/j.vaccine.2016.04.079

b. Outer membrane vesicles: an attractive candidate for pertussis vaccines.

Hozbor DF. *Expert Rev Vaccines*. 2016 Dec 30;1-4. doi: 10.1080/14760584.2017.1276832. ISSN: 1744-8395

c. Development and assessment of a new cage-like particle adjuvant. Bertona D, Pujato N, Bontempi I, Gonzalez V, Cabrera G, Gugliotta L, Hozbor D, Nicastro A, Calvinho L, Marcipar IS. *J Pharm Pharmacol.* 2017 Jun 30. doi: 10.1111/jphp.12768.

d. Membrane vesicles derived from *Bordetella bronchiseptica*: active constituent of a new vaccine against infections caused by this pathogen. Bottero, D.; Zurita, ME.; Gaillard, ME.; Bartel, E.; Vercellini C.; and Hozbor, D. *Applied and Environmental Microbiology* 2017. AEM.01877-17. doi: 10.1128/AEM.01877-17 ISSN: 1098-5336.

e- New Pertussis Vaccines: A Need and a Challenge. Hozbor D. *Adv Exp Med Biol.* 2019 Aug 21. doi: 10.1007/5584_2019_407. ISSN: 0065-2598

f. A pertussis outer membrane vesicle-based vaccine induces lung-resident memory CD4 T cells and protection against *Bordetella pertussis*, including pertactin deficient strains Maria Eugenia Zurita, Mieszko W Wilk, Francisco Carriquiriborde, Erika Bartel, Griselda Noemi Moreno, Alicja Misiak, Kingston H.G. Mills and Daniela F Hozbor. *Front Cell Infect Microbiol.* 2019 Apr 26;9:125. doi: 10.3389/fcimb.2019.00125. eCollection 2019

During the last 3 years we published the following articles

a. Pertussis vaccination in mixed markets: recommendations from the Global Pertussis Initiative. Amar J Chitkara, Mónica Pujadas Ferrer, Kevin Forsyth, Nicole Guiso, Ulrich Heininger, Daniela Flavia Hozbor, Rudzani Muloiwa, Tina Q Tan, Usa Thisyakorn, CH Wirsing von König. *International Journal of Infectious Diseases.* 2020 May 12;96:482-488. doi: 10.1016/j.ijid.2020.04.081.

b. Highlights of the 12th International *Bordetella* Symposium. Camille Locht, Nicholas H. Carbonetti, James D. Cherry, F. Heath Damron, 5, Kathryn M. Edwards, Rachel Fernandez, Eric T. Harvill, Daniela Hozbor, Kingston H. G. Mills, Maria Eugenia Rodriguez, Françoise Mascart. *Clin Infect Dis.* 2020 May 28;ciaa651. doi: 10.1093/cid/ciaa651.

c. Canonical and non-canonical inflammasome activation by outer membrane vesicles derived from *Bordetella pertussis*. Maia L. Elizagaray, Marco Túlio R. Gomes, Erika S. Guimarães, Martín Rumbo, Daniela F. Hozbor, Sergio C. Oliveira2 and Griselda N. Moreno, *Front Immunol.* 2020 Aug 20;11:1879. doi: 10.3389/fimmu.2020.01879. eCollection 2020.

d. La Universidad Pública y su rol en la pandemia COVID-19: laboratorios de diagnóstico al servicio de la red nacional de laboratorios de influenza y otros virus respiratorios. Toro, R., Unzaga, J. M., Marquez, G., Panei, J., Bosch, A., Docena, G., Abba, M. C., & Hozbor, D. (2020). *Innovación Y Desarrollo Tecnológico Y Social*, 2(2), 25-50. <https://doi.org/10.24215/26838559e015>

e. Active surveillance of asymptomatic, presymptomatic, and oligosymptomatic SARS-CoV-2-infected individuals in communities inhabiting closed or semi-closed institutions, by Nicolás Martín Ambrosis, Pablo Martín Aispuro, Keila Belhart, Daniela Bottero, Renée Leonor Crisp, María Virginia Dansey, Magali Gabrielli, Oscar Filevich, Valeria Genoud, Alejandra Giordano, Min Chih Lin, Anibal Roberto Lodeiro, Felipe Marceca, Nico Pregi, Federico Remes Lenicov, Luciana Rocha-Viegas, Erika Rudi, Guillermo Solovey, María Eugenia Zurita, Adali Pecci, Roberto Etchenique, Daniela F Hozbor, published in *Frontiers in Medicine*, section Infectious Diseases – Surveillance, Prevention and Treatment. 4;8:640688. doi: 10.3389/fmed.2021.640688. eCollection 2021. ISSN 2296-858X

f. Emerging macrolide resistance in *Bordetella pertussis* in mainland China: Findings and warning from the global pertussis initiative. Ye Feng, Cheng-Hsun Chiu, Ulrich Heininger, Daniela Flavia Hozbor, Tina Tang, Carl-Heinz Wirsing von König. *The Lancet Regional Health - Western Pacific* Volume 8, March 2021, 100098.

g. Pool Strategy for Surveillance Testing of SARS-CoV-2. Felipe Marceca, Luciana Rocha Viegas, Nicolas Pregi, María Gabriela Barbas, Daniela Hozbor, Adali Pecci, Roberto Etchenique. *Science Reviews - from the end of the world* (ISSN 2683-9288). 2021

h. Pertussis in Asia: Recent country-specific data and recommendations. Jog P, Memon IA, Thisyakorn U, Hozbor D, Heininger U, von König CHW, Tan T; participants of the 2019 GPI Thailand Meeting. *Vaccine.* 2022 Jan 22;S0264-410X(21)01612-1. doi: 10.1016/j.vaccine.2021.12.004.

i. Immunogenicity and reactogenicity of heterologous immunization against SARS CoV-2 using Sputnik V, ChAdOx1-S, BBIBP-CorV, Ad5-nCoV, and mRNA-1273. Pascuale CA, Varese A, Ojeda DS, Pasinovich ME, Lopez L, Rossi AH, Rodriguez PE, Miglietta EA; Laboratorio SeVa Group, Mazzitelli I, Di Diego Garcia F, Sanchez L, Rouco SO, Gonzalez Lopez Ledesma MM, Zurano JP, Mazzitelli B, Scruzzi G, Barbero P, Cardozo D, Gallego S, Borda M, Diaz M; Ministerio de Salud de la Provincia de Córdoba Group; UNC-Fac. Cs. Médicas-InViV Group, Rídao F, Rosales AB; Ministerio de Salud de la Provincia de La Rioja Group, Bhon J, Talia JM, Diangelo ME, Lacaze MA; Ministerio de Salud de la Provincia de San Luis Group, Aime B, Gutierrez SI, Ercole R, Toro R, Tau L, Delaplace L, Compagnucci MF; Universidad Nacional de La Plata Group, Sartori C, Desimone I, Echegoyen C, Velazquez P, Testa C; Ministerio de Salud de la Provincia de Buenos Aires Group, Hozbor D, Docena G, Laino CH, Kreplak N, Pifano M, Barbas G, Rearte A, Vizzotti C, Castelli JM, Geffner J, Gamarnik AV. *Cell Rep Med.* 2022 Aug 16;3(8):100706. doi: 10.1016/j.xcrm.2022.100706.

j. Immunological study of COVID-19 vaccine candidate based on recombinant spike trimer protein from different SARS-CoV-2 variants of concern. Rudi E, Martin Aispuro P, Zurita E, Gonzalez Lopez Ledesma MM, Bottero D, Malito J, Gabrielli M, Gaillard E, Stuible M, Durocher Y, Gamarnik AV, Wigdorovitz A, Hozbor D. *Front Immunol.* 2022 Sep 29;13:1020159. doi: 10.3389/fimmu.2022.1020159

k. Pertussis in India: Past, Present, and Future. Chitkara AJ, Balasubramanian S, Choudhury J, Dash N, Forsyth K, Heininger U, Hozbor DF, Muloiwa R, Tan T, von König CHW. *Indian J Pediatr.* 2022 Dec 16. doi: 10.1007/s12098-022-04384-w. Review.

l. Vaccination in Pregnancy against Pertussis: A Consensus Statement on Behalf of the Global Pertussis Initiative. Abu-Raya B, Forsyth K, Halperin SA, Maertens K, Jones CE, Heininger U, Hozbor D, Wirsing von König CH, Chitkara AJ, Muloiwa R, Tan TQ. *Vaccines (Basel).* 2022 Nov 23;10(12):1990. doi: 10.3390/vaccines10121990. PMID: 36560400 Free PMC article. Review.

m. Evaluation of Whole-Cell and Acellular Pertussis Vaccines in the Context of Long-Term Herd Immunity. Szejser-Zawislak E, Wilk MM, Piszczek P, Krawczyk J, Wilczyńska D, Hozbor D. *Vaccines (Basel).* 2022 Dec 20;11(1):1. doi: 10.3390/vaccines11010001. PMID: 36679846 Free PMC article. Review.

n. Bordetella pertussis responses in neonates mice born to animals primed with whole-cell versus acellular vaccine in infancy. Pablo Martin Aispuro, Daniela Bottero, Maria Eugenia Zurita, Maria Emilia GAILLARD, Daniela Flavia Hozbor. *Front Immunol. Sec. Vaccines and Molecular Therapeutics Volume 14 - 2023* | doi: 10.3389/fimmu.2023.1192119

Based on the excellent results we obtained with the OMV vaccine in animal models we submitted two patents, one is granted and the other is pending

International Patent: Vaccines for the prevention of infections with Bordetella. Submission Number: 060143 Application Number: PCT / IB2014 / 060143. Date of Receipt: 25 March 2014 Receiving Office: International Bureau of the World Intellectual Property Organization. **Granted in USA**

Vaccine to prevent infection with Bordetella. Bottero D, Gaillard ME, Zurita ME, Ormazabal M, Errea A, Moreno G, Hozbor D, Rumbo M. Ministry of Economy, Public Works and Services (Reg. Industrial Property). 27 / File 03/2013 20130101023 pending

D. Additional Information: Research Support and/or Scholastic Performance

Research Support (41 in total)

Active

- PIP2021-2023 Heterologous Vaccination as an Innovative Preventive Strategy against Pertussis. PI HOZBOR, DANIELA FLAVIA. Institute of Biotechnology and Molecular Biology (IBBM); (CONICET - UNLP). Grant amount: \$1,825,000.00.

- FONARSEC In vivo testing of Argentine COVID-19 vaccines. Project N5 IB National University of La Plata (UNLP). Project Title: "Development of second-generation protein-based vaccines against COVID-19: Steps towards clinical trials in humans." Academic Lead: Dr. Daniela Hozbor, Manager: Dr. Daniela Bottero. Grant amount: \$60,000,000.00.

-PICT-2020- SERIEA-03034 Heterologous Vaccination as an Innovative Preventive Strategy against Pertussis, a Resurgent Respiratory Disease. Open Topics (I) Work Team: HOZBOR DANIELA Biological Sciences of Cells and Molecules, National University of La Plata [UNLP]. Grant amount: \$4,400,771.

Recently Completed

Grant for organizing scientific events 2018 CONICET. PI: Dr. Hozbor, grant amount 50,000. Organization of the Third Vaccinology Workshop 2018. CCT La Plata CONICET. June 11-14, 2018.

Transpert Eu-Lac Project. Argentina Node. PI: Dr. Daniela Hozbor. Grant amount: 34,990 euros. 2018-2022.

PICT 2017-2365 A new approach to functional characterization of strains applied to the design of a more effective pertussis vaccine. PI: Dr. Daniela Hozbor. Grant amount: 1,008,000 Argentine pesos. May 1, 2019.