

Postdoctoral Position Available

Poxvirus and Vaccines Laboratory at the CNB-CSIC (Madrid, Spain)

A 3-year postdoctoral position is available in the Poxvirus and Vaccines Laboratory at the CNB (PIs: Juan García Arriaza and Mariano Esteban) (<https://poxvirusandvaccines.wordpress.com/>) to work in the development of novel vaccine candidates against SARS-CoV-2. As a model system of delivery vector for expression of genes of interest we use modified vaccinia virus Ankara (MVA), a member of the poxvirus family.

Project and job information: We have previously developed a vaccine candidate against SARS-CoV-2 based on the MVA vector expressing the SARS-CoV-2 S protein that is highly immunogenic and effective in animal models. We have received funding from Ministerio de Ciencia e Innovación (Project title: Development, immune function and efficacy of vaccine candidates against SARS-CoV-2/COVID-19 based on the poxvirus vector MVA [MVA-SARS-CoV-2]) to generate novel vaccine candidates against SARS-CoV-2, as well to study their immunogenicity and efficacy in animal models. The goal of this project is to develop new strategies of vaccination extending the range of SARS-CoV-2 antigens, in order to establish the best-in-class immunogen inducing more potent levels of SARS-CoV-2-specific T and B-cell immune responses, and conferring the highest level of protection. These findings will generate detail knowledge on the immune mechanisms needed for SARS-CoV-2 vaccine efficacy, relevant for vaccination programs against this and other emerging viruses, and will identify the most effective vector(s) that could move forward to clinical trials. The project is highly interdisciplinary combining virology, cell biology methods, immunology and experimentation in animal mouse models.

Competences: Highly motivated postdoc researchers with strong interest and experience in vaccine development, virology and immunology. Motivated candidates with previous experience in generation of recombinant viruses, cell culture, molecular biology and mice experimentation are especially encouraged to apply. Good knowledge of English and Certificate in animal experimentation is highly desirable.

Start date: January 2022.

Contact: Interested candidates should submit a cover letter and a CV to Juan García Arriaza (jfgarcia@cnb.csic.es) and Mariano Esteban (mesteban@cnb.csic.es).

Relevant publications from the group:

- García-Arriaza J, Garaigorta U, Pérez P, Lázaro-Frías A, Zamora C, Gastaminza P, Del Fresno C, Casasnovas JM, Sorzano CÓS, Sancho D, and Esteban M. COVID-19 vaccine candidates based on modified vaccinia virus Ankara expressing the SARS-CoV-2 spike protein induce robust T- and B-cell immune responses and full efficacy in mice. *J Virol.* 2021, 95(7):e02260-20. doi: 10.1128/JVI.02260-20.
- Pérez P, Martín-Acebes MA, Poderoso T, Lázaro-Frías A, Saiz JC, Sorzano CÓS, Esteban M, and García-Arriaza J. The combined vaccination protocol of DNA/MVA expressing Zika virus structural proteins as efficient inducer of T and B cell immune responses. *Emerg Microbes Infect.* 2021, 10(1):1441-1456. doi: 10.1080/22221751.2021.1951624.
- García-Arriaza J, Esteban M, and López D. Modified Vaccinia Virus Ankara as a Viral Vector for Vaccine Candidates against Chikungunya Virus. *Biomedicines.* 2021, 9(9):1122. doi: 10.3390/biomedicines9091122.
- Pérez P, Marín MQ, Lázaro-Frías A, Sorzano CÓS, Gómez CE, Esteban M, and García-Arriaza J. Deletion of Vaccinia Virus A40R Gene Improves the Immunogenicity of the HIV-1 Vaccine Candidate MVA-B. *Vaccines.* 2020, 8(1):70. doi: 10.3390/vaccines8010070.
- Pérez P, Q Marín M, Lázaro-Frías A, Jiménez de Oya N, Blázquez AB, Escribano-Romero E, S Sorzano CÓ, Ortego J, Saiz JC, Esteban M, Martín-Acebes MA, and García-Arriaza J. A Vaccine Based on a Modified Vaccinia Virus Ankara Vector Expressing Zika Virus Structural Proteins Controls Zika Virus Replication in Mice. *Sci Rep.* 2018, 8(1):17385. doi: 10.1038/s41598-018-35724-6.
- Lázaro-Frías A, Gómez-Medina S, Sánchez-Sampedro L, Ljungberg K, Ustav M, Liljeström P, Muñoz-Fontela C, Esteban M, and García-Arriaza J. Distinct Immunogenicity and Efficacy of Poxvirus-Based Vaccine Candidates against Ebola Virus Expressing GP and VP40 Proteins. *J Virol.* 2018, 92(11):e00363-18. doi: 10.1128/JVI.00363-18.