



VERONICA RODRIGUEZ FERNANDEZ

Nov. 2020- Gen. 2024:
PhD in Infectious Diseases,
Microbiology and Public
Health. La Sapienza,
University of Rome

SUMMARY

Hi! I am Veronica. During my PhD I have been looking at the infection of *Toxoplasma gondii* in the retina. I am also interested in environmental toxoplasmosis and parasite dissemination, specially in the sea environment. My main goal is to look at diseases from the One Health perspective.

CONTACT

SKILLS

- Molecular analysis: protein and DNA extraction, Western Blott, PCR
- Immunohistochemistry
- Cell and tissue culture
- Retinal explant - ex-vivo culture from mice
- *T. gondii* culture: in *in-vitro* and ex-vivo models

EDUCATION

Bachelor of Scienze

Major: Biology

University of Valencia (Spain) and Lund University (Sweden)

Completed: February 2011

Master of Scienze

Major: Molecular biology with specialization in Medical Biology

Lund University

Completed: March 2013

Master of Scienze

Major: Acquatic Ecology

Lund University

Initiated in 2013 - still to make the final project

SCIENTIFIC EVENTS

Oral presentation at the Italian Society of Parasitology

27-30 June 2022 - Naples, Italy

- Oral presentation about *T.gondii* in retinal infection

Environmental Toxoplasmosis Workshop and Conference

May 2022 - Riverside, California

- Won an scholarship to participate
- Presentation of poster
- Exchange of ideas with other 10 students
- Followed by the International Toxoplasmosis Conference

COURSES AND INTERNSHIPS

Internship at Shapiro's lab

September-Dicember 2023 - UC Davis, California

- Oyster sampling and spiking
- Extraction of protozoa DNA from oysters and seawater
- PCR

Internship at Fusco's lab

January 2023 - Bernhard Nocht Institute, Hamburg

- DNA extraction from plasma samples from Madagascar to search for Schistosomas

Scientific Illustration Course

April-May 2022 - Illustraciencia (online)

- How to design the different molecules and structures seen in the microscope
- Photoshop
- Chimera / VMD programs

Lab practice - Prof. Di Cristina, Manlio

November 2021 - Perugia, Italy

- Learn different molecular techniques

Project Assistant

2019-present - K-production, Italy

- Creation of different games to communicate science
- Lambe-lambe for scientific divulgation
- Book inspiration
- Circus-based

Student Associated

2010-2013 - Lund University (Sweden)

- Department of Experimental Medical Science, section of Molecular Virology
- Phylogenetic analysis of HIV in blood samples from Guinea Bissau

INTERESTS

- Painting, drawing
- Biking
- Camping
- Making pottery

REFERENCES

- Karen Shapiro, Dipartment of Veterinary medicine, UC Davis. kshapiro@ucdavis.edu
- Fabrizio Bruschi, Dipartimento di Ricerca Traslazionale e delle Nuove Tecnologie in Medicina e Chirurgia, Università di Pisa
fabrizio.bruschi@unipi.it

LIST OF PUBLICATIONS

Toxoplasma gondii in Marine Life of Italian Coasts, What Do We Know So Far?

December 2023, Parasitologia

Authors: Veronica Rodriguez Fernandez, Fabrizio Bruschi

Ocular Toxoplasmosis: Mechanisms of Retinal Infection and Experimental Models

April 2021, Parasitologia

Authors: Veronica Rodriguez Fernandez, Giovanni Casini, Fabrizio Bruschi

Immunopathology of myositis, myocarditis, and central nervous system involvement in trichinellosis

Chapter in book: Trichinella and Trichinellosis

January 2021

Authors: Fabrizio Bruschi, Veronica Rodriguez Fernandez

PHD THESIS

Title:

Navigating Toxoplasma gondii: Intricacies of Retinal infection and Insights into its Presence in the Sea

Abstract:

This PhD thesis presents two distinct experiments aimed at advancing our understanding of Toxoplasma gondii infection and optimizing protozoa DNA extraction methods for environmental monitoring. In Experiment I, an ex-vivo retina model was developed to study T. gondii infection. The comprehensive examination of retinal explants revealed active and sustained immune responses, establishing the model's suitability for T. gondii studies. Unlike the brain, retinal cysts did not exhibit noticeable lateralization, attributed to the retina's uniform lateral structure. Molecular analyses demonstrated the activation of NF-κB signaling and the potential protective role of GSTO-1 against T. gondii. IL-6 exhibited a subtle elevation, aligning with its proposed protective function, potentially contributing to delayed encystment. Activation of glial cells was observed during T. gondii infection, with implications for retinal integrity. Experiment II focused on protozoa DNA extraction from oysters and seawater. The comparison of FastPrep and Qiagen DNA extraction methods provided insights into the efficiency and sensitivity of each protocol. Variability in results emphasized the need for method optimization, especially in scenarios with lower parasite concentrations. Challenges associated with oversized oyster pellets were identified, leading to considerations for sample handling. FastPrep proved less efficient for Giardia, prompting the exploration of standardized protocols. Conversely, FastPrep showed better results for T. gondii, suggesting its potential advantage in processing complex samples like spawning oysters. Overall, these experiments contribute valuable insights into T. gondii infection dynamics in the retina and offer practical considerations for optimizing protozoa DNA extraction methods in shellfish and seawater samples. The findings enhance our understanding of host-parasite interactions and provide guidance for future studies and environmental monitoring protocols.