



Giovanni Franco

Date of birth: | Nationality: Italian | Gender: Male | Phone number:

| Email address:

Address:

WORK EXPERIENCE

09/12/2022 – CURRENT Legnaro, Italy

ASSOCIATE PROFESSOR DEPARTMENT OF ANIMAL MEDICINE, PRODUCTION AND HEALTH (MAPS), UNIVERSITY OF PADUA

Academic discipline: VET/05 Infectious Diseases of Domestic Animals

11/2017 – 09/12/2022 Legnaro, Italy

RESEARCHER DEPARTMENT OF ANIMAL MEDICINE, PRODUCTION AND HEALTH (MAPS), UNIVERSITY OF PADUA

01/2015 – 10/2017 Legnaro, Italy

FELLOW RESEARCHER DEPARTMENT OF ANIMAL MEDICINE, PRODUCTION AND HEALTH (MAPS), UNIVERSITY OF PADUA

01/2012 – 12/2014 Legnaro, Italy

PHD STUDENT DEPARTMENT OF ANIMAL MEDICINE, PRODUCTION AND HEALTH (MAPS), UNIVERSITY OF PADUA

10/2011 – 12/2011 Legnaro, Italy

ATTENDING GRADUATE AT THE LABORATORY OF INFECTIOUS DISEASES DEPARTMENT OF PUBLIC HEALTH, COMPARATIVE PATHOLOGY AND HYGIENE, PADUA UNIVERSITY

EDUCATION AND TRAINING

11/2017

SECOND DEGREE MASTER IN "BIostatISTICS AND CLINICAL EPIDEMIOLOGY" University of Pavia

Thesis Comparison and validation of different machine learning methods for the prediction of survival to Canine Parvovirus 2 infection

03/2015

DOCTOR IN PHILOSOPHY" (PHD) IN "VETERINARY SCIENCE" University of Padua

Field of study Veterinary Science |

Thesis Further insight into the molecular epidemiology and evolutionary dynamics of rapidly evolving RNA and ssDNA viruses

09/2011

DEGREE IN VETERINARY MEDICINE University of Padua

Final grade 110/110 cum laude |

Thesis Application of molecular biology assays to the diagnosis of Porcine circovirus type 2 (PCV2) infection

SCIENTIFIC HIGH SCHOOL DIPLOMA Liceo scientifico "Le filandiere"

Final grade 100/100 cum laude

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

| | UNDERSTANDING | | SPEAKING | | WRITING |
|----------------|---------------|---------|-------------------|--------------------|---------|
| | Listening | Reading | Spoken production | Spoken interaction | |
| ENGLISH | C1 | C1 | C1 | C1 | C1 |

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Microsoft Office | Social Media | Microsoft Excel | Microsoft Word | Zoom | Microsoft Powerpoint |
Bioinformatics software | Next Generation Sequencing | Phylogenesis | Phylodynamics | Statistic tools |
Molecular Biology softwares

INTERNATIONAL RESEARCH ACTIVITIES

Visiting researcher

- 6th November – 22th December 2017: Visiting Researcher at IRTA, Centre de Recerca en Sanitat Animal (CRESA, IRTA- UAB), Campus de la Universitat Autònoma de Barcelona, 08193 Bellaterra, Barcelona, Spain. The relative project was focused on the study of within-host Porcine circovirus type 2 subpopulations using Next Generation Sequencing data. The study aimed to reconstruct the structure of viral subpopulations in longitudinally collected samples. I also took part in metagenomic studies and more traditional molecular epidemiological investigations dealing with Porcine circovirus type 3.
- 12th March 2016 – 20th March 2016: Visiting researcher at INRA, UMR Interactions Hotes-Agents Pathogenes, Ecole Nationale Veterinaire, Toulouse. The visit was focused on the analysis of Next Generation Sequencing data (both resequencing and metagenomic analysis) obtained from several avian species (i.e. avian Metapneumovirus, Infectious bronchitis virus, avian Paramixovirus). I also participated in the training of local PhD students.
- 10th November – 5th December 2014: Visiting researcher at MRC University of Glasgow. Centre for Virus Research; Institute of Infection, Immunity and Inflammation; College of Medical, Veterinary and Life Sciences. The relative project was focused on the use of a phylodynamic approach to model and reconstruct population dynamics, evolutionary rates and selective forces shaping Porcine circovirus type 2 molecular epidemiology and evolution.

PROJECTS

MAJOR RESEARCH/PROFESSIONAL INTERESTS

The research activities focus mainly on the study of viral evolution and molecular epidemiology using different bioinformatic, phylogenetic-based and biostatistics approaches. To date, my studies have focused mostly on rapidly evolving RNA and single-strand DNA viruses affecting swine (PCV-2, PCV-3 and PRRSV), poultry (aMPV, IBDV and IBV) and pets (CPV and FPV). In the last years, I extensively worked on the epidemiology of these and other viruses (e.g. ASFV, AHSV, WNV, BFDV, etc) in wild animals, both in the Italian scenario and through collaboration with foreign countries, Africa in particular. I have also investigated the effect of these viruses' remarkable heterogeneity on the control strategies (i.e. vaccination efficacy) and performances of molecular biology-based diagnostic assays. Recently, I worked on the development of Machine Learning models aimed to predict the disease outcome based on genetic data or clinical parameter analysis.

SKILLS

Research skills

- Laboratory skills: Nucleic acid extraction; PCR, RT-PCR and real-time PCR design, validation and execution; Nucleic acid purification; Sanger sequencing; Cloning.
- Biostatistical skills: Study design and sample size calculation; database creation, management and manipulation; execution of statistical test and hypothesis testing; creation and validation of Machine Learning predictive algorithms; advanced knowledge of tools used for statistical analysis (i.e. R, Stata, SPSS).
- Bioinformatic skills: Sanger sequence quality check; sequence alignment; evolution model selection; recombination detection; phylogenetic analysis; models comparison and hypothesis testing; selective pressure estimation; phylodynamic analysis; epitopes prediction; homology modeling; Next Generation Sequencing data

analysis (re-sequencing, de-novo sequencing, sub-population investigations, metagenomic); good knowledge of programming tools like R and Python.

PUBLICATIONS

International journals

Author of 167 articles in international journals
2,537 citations
h-index=26

Link <https://www.scopus.com/authid/detail.uri?authorId=55961557100>

CONGRESS PRESENTATION LIST

Invited speaker

- Franco G. When everything becomes bigger: big data for big poultry production. Keynote during the XXII congress of the World Veterinary Poultry Association (WVPA), Verona 4-8/09/2023
- Franco G. Epidemiologia ed evoluzione di PCV2: un vecchio, nuovo virus. Presentation during the XLVIII Meeting annuale SIPAS, Pescantina (VR) 30-31/03/ 2023
- Franco G. PCV2 molecular epidemiology: to what extent does it affect the infection control? Presentation during a preliminary meeting before the 13th European Symposium of Porcine Health Management, Budapest, Hungary. 11/05/2022
- Franco G. PCV2 molecular epidemiology and control strategies. In: Zoetis Peer Circles, PCV2 Control: Optimization Through Vaccination. Webinar for Asian veterinarians. 21/12/2021
- Franco G. Current topics in PCV2 infections, including PCV1, PCV2 and PCV3. Middle European Congress, Brno, Czech republic. 07/09/2021
- Franco G. Porcine circovirus 2 evolution, genotypes, immunity and vaccines. Webinar for Asian counties. Sponsored by Philippine Zoetis veterinary division. 14/05/2021
- Franco G. La rivoluzione in evoluzione. Webinar for Italian veterinarians sponsored by Zoetis. Ostia. 15/06/2021.
- Franco G. Porcine circovirus 2 genotypes immunity and vaccines Multiple genotypes but one single serotype. Webinar for US veterinarians Sponsored by Zoetis. 01/05/2021
- Franco G. Epidemiologia ed evoluzione del PCV-2. Webinar Circo Learning, for Italian veterinarians. 26/01/2021
- Franco G. Diagnostica e epidemiologia molecolare. Webinar La diagnostica in medicina veterinaria: innovazione e utilizzo consapevole. Organized by the Scuola di Specializzazione in Sanità Animale, Allevamento e Produzioni Zootecniche. 05/06/2020
- Franco G. I coronavirus prima del Coronavirus: come li gestiscono i veterinari. Speech performed during VenetoNight, Padova. 27/11/2020
- Franco G. Quando un coronavirus entra in allevamento: studio e controllo della malattia nella veterinaria del nuovo millennio. Speech performed during the Galileo Festival, 14/10/2020
- Franco G. Phylodynamics of RNA and ssDNA viruses: a bridge among genetics, epidemiology and evolution. Centre de Recerca en Sanitat Animal (CRESA), IRTA- UAB. 11/12/2017.
- Franco G. PCV2: Pace clinica (?) e dinamismo evolutivo. 18° Congresso internazionale SIVAR Cremona. 11-13/05/2016.

Presentations

Author of 24 presentations in national and international congresses.

TEACHING ACTIVITIES

2016 – 2017

Molecular basis of disease, immunology and transmissible diseases

Lecturer in the course “Molecular basis of disease, immunology and transmissible diseases” of the Master Degree in Biotechnologies for food science (taught in English), Padua University.

2018 – 2020

Biomolecular Techniques Applied to Transmissible Diseases

Lecturer in the course “Biomolecular Techniques Applied to Transmissible Diseases” of the Master Degree in Animal Biotechnology, Bologna University.

2018 – CURRENT

Biotechnology applied to microorganisms of agri-food and veterinary interest

Lecturer in the course "Biotechnology applied to microorganisms of agri-food and veterinary interest" of the Biotechnology course, Padua University (32 hours; 3 CFU).

2019 – CURRENT

Epidemiology and Risk Analysis

Lecturer in the course "Epidemiology and Risk Analysis" of the Master Degree in Biotechnologies for food science (taught in English), Padua University (32 hours; 4 CFU).

2020 – CURRENT

Practical activities of the Infectious disease module

Lecturer in the practical activities of the Infectious disease module of the course in Veterinary Medicine, Padua University (60 hours; 1CFU)

2020 – CURRENT

Conservation medicine of aquatic animals

Lecturer in the Master in "Conservation medicine of aquatic animals", Padua University

05/06/2020

LA DIAGNOSTICA IN MEDICINA VETERINARIA: INNOVAZIONE E UTILIZZO CONSAPEVOLE

Lecturer in the webinar "LA DIAGNOSTICA IN MEDICINA VETERINARIA: INNOVAZIONE E UTILIZZO CONSAPEVOLE" organized by the Scuola di Specializzazione in Sanità Animale, Allevamento e Produzioni Zootecniche

● **DISSEMINATION ACTIVITIES**

27/11/2020

I coronavirus prima del Coronavirus: come li gestiscono i veterinari.

Speech performed during VenetoNight, Padova

14/10/2020

Quando un coronavirus entra in allevamento: studio e controllo della malattia nella veterinaria del nuovo millennio.

Speech performed during the Galileo Festival, 14/10/2020

● **NETWORKS AND MEMBERSHIPS**

European College of Veterinary Microbiology (ECVM)

Italian Society of Avian Pathology (SIPA)

Italian Society of Swine Pathology and Farming (SIPAS)

Italian Society of Livestock Veterinarians (SIVAR)

Italian Society of Veterinary Infectivists (ANIV)

Member of the EUROPRRS2012 COST Action FA902 and IBV COST Action FA1207

● **HONOURS AND AWARDS**

03/03/2015

Winner of the Houghton Trust Grant to take part in the XIX Congress of the World Veterinary Poultry Association – Houghton Trust

Winner of the Houghton Trust Grant to take part in the XIX Congress of the World Veterinary Poultry Association

02/11/2016

Winner of the SIPAS research scholarship. – SIPAS

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07/12/2016

Scholarship entitled "Analisi biomolecolari mediante PCR e Sequenziamento per l'evidenziazione e differenziazione del virus della bronchite infettiva aviaria" – Dept. Animal Medicine, Production and Health (MAPS)

03/03/2019

Winner of the Houghton Trust Grant to participate in the XXI Congress of the World Veterinary Poultry Association – Houghton Trust

Winner of the Houghton Trust Grant to participate in the XXI Congress of the World Veterinary Poultry Association

Enlisted among the researchers within the top 2% of scientists of their main discipline

Enlisted among the researchers within the top 2% of scientists of their main discipline in the recently published work: Ioannidis, John PA, Kevin W. Boyack, and Jeroen Baas. "Updated science-wide author databases of standardized citation indicators." PLoS Biology 18.10 (2020): e3000918. The results have been confirmed the following year.

● **INSTITUTIONAL ACTIVITIES**

Academic Activities

- Since 2017 Member of the Dept. MAPS council.
- Since 2018 Member of Biotechnology course council
- Since 2020 Member of Biotechnology for food and science course council.
- Since 2020 Member of the Research Committee of dept.MAPS.
- Since 2021 Member of the Group for Accreditation and Evaluation of the Biotechnology for food and science course.
- Since 2021 Member of Veterinary Medicine course council.
- Since 2021 Member of the Board of the PhD program in Veterinary Science.
- Since 2022 representative of the dept.MAPS for Inclusion and Disability
- Member of the evaluation panel of the PhD Thesis in Veterinary Sciences for the Bologna University (XXXI cycle).
- Member of the PhD commission for the Universidade de Sao Paulo, Brazil (18 November 2015) and Facultat de Veterinària, UAB, Spain (1 July 2021).

● **PATENTS**

Patent number 102017000031092 - Method for predicting cross-protection between Infectious Bronchitis strains

● **EDITORIAL ACTIVITY**

Editorial Board

- Since 2019 Member of the editorial board of Large animal Review
- Since March 2020: Member of the editorial board of Frontiers in Veterinary Science
- Since February 2023 Member of the editorial board of Animals
- Since March 2020: Guest editor of Veterinary Science in the Special issue "Trends in Poultry Diseases"
- Since February 2021: Guest editor of Pathogens in the Special issue "Advances in Circoviruses"
- Since January 2023: Guest editor of Pathogens in the Special issue "Evolution and Adaptation of Avian Viruses"

Chapter author

- Author of the chapter "Circoviruses (Circoviridae) in the Encyclopedia of Virology (4th edition). Ed. Elsevier: FRANZO G, SEGALÉS J. CIRCOVIRUSES (CIRCOVIRIDAE). IN: BAMFORD DH, ZUCKERMAN M, EDITORS. ENCYCLOPEDIA OF VIROLOGY. 4TH ED. ELSEVIER SCIENCE; 2020. P. 182–92
- Author of several chapters of the book "MICROBIOLOGIA E VIROLOGIA IN SINTESI", Fondazione iniziative zooprofilattiche e zootecniche, Brescia.

