GUIDO CORDONI

DVM, PGDip (Animal Health), PhD (Virology), MRCVS

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Personal profile

I am a veterinary surgeon and my main professional interests are on infectious diseases, molecular and spatial epidemiology, microbiology, molecular biology, Next Generation Sequencing and bioinformatics. I have applied this knowledge to my PhD research on the epidemiology and characterisation of honey bee viruses and in my current post-doctoral job where I am characterising Avian Pathogenic *E. coli* using self developed multiplex PCR assays and NGS analysis. I am also an expert designer of PCR based diagnostic tests that are currently used as routine test in one of the major equine hospital in UK.

I am also the invited lecturer for Honey Bee Diseases at MSc Veterinary Microbiology, and I mentor MSc/PhD students on a daily base.

My last research interests are on the fields of de novo assembly, whole genome comparisons, metabolic modelling and meta-genomic analysis in Bacteriology; and thanks to my skills I can control the whole analysis (sampling, bacterial growth, DNA purification, NGS analysis) on my own or managing a small team of researchers.

Education

10/11/2011 PhD in Virology
Faculty of Health and Medical Sciences, University of Surrey (UK).
Thesis in Virology:
«Epidemiology and Taxonomy of Honeybee Viruses in England and Wales». (Scholarship funded by DEFRA).

03/07/2007 – PGDip in "Animal Health, Breeding and livestock Products" (3 years, 4500 hours)
Faculty of Veterinary Medicine at the University of Bologna (Italy)
Thesis in veterinary epidemiology: «The use of Geographic Information Systems (GIS) in Veterinary Medicine: an Application in Apiculture».

09/12/2004 - License to practice veterinary medicine
University of Bologna. Member of the Association of the Veterinary Surgeons of Ancona (Italy).

11/03/2004 - Master's Degree in Veterinary Medicine (5 years)
Faculty of Veterinary Medicine, University of Bologna (Italy)
Thesis in Veterinary Microbiology and Immunology: «A study oo the Total Protein Profile of *Flexyspira rappini* Found in Dogs and Cats».

1992 - Scientific Lyceum (A level grammar school equivalent) Diploma
Liceo Scientifico "E. Majorana", Isernia (Italy)
(Subjects studied: Mathematics, Physics, Biology, Chemistry, Italian, English, Latin, Philosophy, History and Economic Geography).

Employment

From MM/YY	To MM/YY	Employer's name, job title, outline of duties
13/02/2012	**Current**	**University of Surrey, Post Doctorate Research Scientist** As Post doctorate researcher my main project is on molecular characterisation of APEC *E. coli* Next Generation Sequencing data analysis and metabolic modelling. Beside to this project I also work on characterisation, NGS data analysis and metabolic modelling of *Clostridium perfringens,* and *Campylobacter spp.* I currently supervise students at MSc/PhD level and laboratory technicians. Previously, in the same position I was working on the development of a multiplex PCR/Real Time PCR assays for: 1. Differential diagnosis of S. equi from S. zooepidemicus; 2. Horse Skin pathogens detection; 3. CEM detection; 4. Detection of bacterial infections in synovial fluid; 5. Production of S.O.Ps for all the assays mentioned before.
08/05/2013 **14/05/2014**	**08/05/2013** **14/05/2014**	**Invited lecturer - University of Surrey:** MSc Veterinary Microbiology - Module 10 -Honey bee diseases. Delivery of lessons on the principal Honeybee diseases. Together with the lessons I created an online learning tool (in a form of a website) where students and interested people can find reference materials. The website is under continuous development (http://www.beediseases.host-ed.me).

13/05/2013	**24/05/2013**	**Associate Tutor – University of surrey:** development of the curriculum for the new School of Veterinary Medicine. I was part of the team that developed the Foundation subjects, Bacteriology, Toxicology, Pharmacology and Infectious Diseases.
10/2007	**01/11/11**	**University of Surrey, collaborative student C/O FERA (UK)** To investigate the epidemiology and the characterisation of honeybee viruses in England and Wales. For two years of my PhD I worked at FERA (ex Central Science Laboratory) in York where I developed the sampling plan and I analysed the epidemiology of the honeybee viruses using the Real Time rt-PCR. In the last year, at the University of Surrey, I have characterised the honeybee viruses found, using the rt-PCR combined with Sanger sequencing and NGS.
05/2006	**06/2007**	**National Animal Helth Service for Zone 7 Ancona ASUR Marche (Italy) – Veterinary Surgeon.** I was working on different projects: 1. Straying animal prevention, collection of samples for planed control of Transmissible Spongiform Encephalopathies. 2. Lessons of health education and animal knowledge in primary schools. 3. Epidemiological survey. My job was to create a census, monitor the health conditions of apiaries and develop a Geographical Information System for the apiaries in Territorial Zone 7. The outcome of this work was the CD-ROM API-INFO (GIS database). An online version (empty fields for privacy reason) is available at http://www.veterinarialimenti.marche.it/apiinfo/APICOLTORI/allevatori_zona_Ancona.htm.
12/2005	**06/2006**	**Veterinary Epidemiological and Diagnostic Centre of the Regions of Umbria and Marche (IZSUM) - Ancona Section (Italy)** Internship at the diagnostic laboratory where I worked on post mortem and bacteriological diagnostics of wild breaded and company animals. I conducted also microbiological analyses of animal based food in particular on *Salmonella spp*. and *Campylobacter spp*.
01/02/03	**01/04/03**	**Faculty of Veterinary Medicine of Bologna, Department of Veterinary Public Health and Animal Pathology (Italy).** Consultant on developing, processing and interpreting data of the total protein profile of Gram-negative bacteria. I designed a Standard Operative Procedure for the analysis of 1D SDS PAGE data. .

Training

From	To	
04/2004	**10/2004**	**Veterinary Hospital and Faculty of Veterinary Medicine, University of Bologna (Italy)** Full time practising veterinary surgeon. The training consisted in developing skills on the clinical, surgical and obstetrical veterinarian medicine; inspection, control and certification of livestock products; avian anatomy, physiology, pathology and animal husbandry (Part of Master's Degree). Achieved the license to practice veterinary medicine.
10/2001	**10/2003**	**Laboratory of Bacteriology and Immunology, Public Veterinary Health and Department of Animal Pathology, Faculty of Veterinary Medicine, University of Bologna. (Italy)** Trainee. Diagnosis of animal bacterial diseases.

Scholarship

10/07 to 10/10	Three years scholarship for the PhD in Taxonomy of UK and exotic honeybee viruses, University of Surrey (UK).

Laboratory skills

Total RNA extraction: I developed a new method based on virus precipitation and GITC RNA extraction in order to maximise the recovery of viral RNA.
Real Time RT-PCR: used as mass screening test during my PhD.
RT-PCR: used to characterise the virus found with the mass screening analysis.
RT-PCR products cloning: used in order to differentiate eventual virus variants present in the same sample or to amplify faint PCR products bands.
Viruses purification: Used to obtain a purified virus stock for my experiments.
Transmission electron microscopy: Used to visually confirm the presence of purified viruses after the purification.
NGS sample preparation and data analysis: Used to obtain the sequence of Slow Paralysis Virus that was unknown at the time. I am currently using this skill in my present job.
Bacteriology laboratory techniques: Currently I am working in the bacteriology laboratory of the FHMS -University of

surrey and I am focused on diagnostic and/or molecular characterisation of infectious bacterial diseases of the animals.
PCR: I master many PCR techniques such as multiplex, touch down, nested, ERIC, RAPD, qPCR, rt-PCR.
Total protein profile (1D SDS-PAGE): I used this technique (Master degree thesis) in order to differentiate different strains of campylobacter.

Languages Skills

Italian: native speaker; English: fluent;

IT Skills

Deep knowledge of the three principal operative systems (Windows Mac OSX and Linux)

Bioinformatics: Blast, Mega, Megan, eBioX, Lasergene DNASTAR suite, CLC BIO workbench, Serial Cloner, NetPrimer, Chromas, Diversity Database (Bio-Rad), Quantity One (Bio-Rad), Velvet, Tablet, Ugene, Artemis, Galaxy, Mauve, Quast, RAST.
Statistical software: Prism.
Geographic Information Systems: Mapinfo, Arcview Gis,
Graphics software: Photoshop, Gimp, ImageJ, Gelanalyser2010.
Office software: MS Office, Openoffice
Web developer software: iWeb, Dreamweaver.
I am also skilled in the use of a variety of software for system management and data recovery.
I am currently studying in the use of Linux/MacOS command line (Bash) and BIO-Perl in order to have more control in the NGS analysis.

Publications

de Miranda, J.R.; Dainat, B.; Locke, B.; **Cordoni, G.;** Berthoud, H.; Gauthier, L.; Neumann, P.; Budge, G.E.; Ball, B. V.; Stoltz, D.B. (2010)**. Genetic characterisation of slow paralysis virus of the honeybee (Apis mellifera L.)** Journal of General Virology. 91:2524-2530.

Kajobe, R.; Marris, G.; Budge, G.; Laurenson, L.; **Cordoni, G**.; Jones, B.; Wilkins, S.; Cuthbertson, A. G.; Brown, M. A.; (2010). **First molecular detection of a viral pathogen in Ugandan honey bees.** Journal of Invertebrate Pathology. 104 (2):153-156.

de Miranda, J. R.**; Cordoni, G.;** Budge G.**; (2009). The Acute bee paralysis virus-Kashmir bee virus-Israeli acute paralysis virus complex.** Journal of Invertebrate Pathology 103 Suppl 1: S30-47 .

Cordoni, G., Spagnuolo, M.L.**; (2007). Development of an experimental GIS for bee-keeping in the Marche Region, Italy.** Veterinaria Italiana 43(3):431-436.

Cordoni G., Spagnuolo L.M.. (2006). **New Technologies and Health Education for Setting Up Bee Farms in the Marche Region** (Nuove tecnologie e divulgazione tecnico-sanitaria per l'implementazione degli allevamenti apistici nelle Marche), in Lavoro e Salute, 7/8, 2006, pp. 4-6.

Cordoni G., Brunelli B., Capomagi A., Pieroni C., Spagnuolo L.M. (2006). **Geo-Referencing Apiaries of the T.Z. 7 ASUR Marche: Study and Health Management of Bee-Keeping in the Marche Region** (La georeferenziazione degli apiari della Z.T. 7 ASUR Marche: conoscenza e gestione sanitaria della apicoltura marchigiana), in Argomenti S.I.Ve.M.P., n° 1/2006, pp. 54-57.

Cordoni G., Giordani R., (2005). **Management of National Kennels According to Regional Law 10/97 and Related Regulations** (La gestione sanitaria dei canili pubblici alla luce della L.R.10/97 e relativo regolamento d'attuazione), in La Professione Veterinaria, n°30, 2005, pp. 6-7.

Conferences and Conventions

Alanazi, M.;Ritchie, J.M.; Newcombe, J.;Cordoni, G., La Ragione, R.M. (2014). Understanding the fitness burden of extended-spectrum β-lactamase harbouring plasmids in avian pathogenic *E. coli.* Poster presented at Postgraduate Research Conference. Guildford 3-4/02/2014

Cordoni G.; (2011).Lecture on Epidemiology and Taxonomy of honey bee viruses organised by the Newbury and Vales Bee Keeping association. Newbury 11/3/2011.

Cordoni, G.; Glover, R.; Adams, I.; Brown, M.; Carter M.J., Budge, G.; (2009). **Application of next-generation sequencing and metagenomic analysis for the characterization of honeybee viruses.** Poster presented at the Festival of Research. Guildford 9/6/2009

Cordoni, G.; Budge, G.; Brown M.;Carter M.J.; (2008). **Investigating the Taxonomy of UK Honey Bee Viruses: A Molecular Approach.** Poster presented at the BBKA Spring Convention. Coventry 19/04/2008.

Cordoni G, Spagnuolo L., (2006). **Development of an Experimental GIS for Bee-Keeping in the Marche Region, Italy**. Poster in 1st OIE (World Organisation for Animal Health) International GIS Conference Use of GIS in Veterinary Activities, Silvi Marina (TE) 8/10 – 11/10/2006

Cordoni G., (2006). **Geographical Information Systems (GIS) Applied to Bee-Keeping.** Presentation at the Convention "Explanatory EU Note on Labelling Honey, Royal Jelly and Pollen; HACCP and Trackability". Fano, Italy 27/05/2006

Cordoni G., (2006). **Geographical Information Systems (GIS) in the Management of Apiary Pathology.** Presentation at the Convention "Honey in the Marche Region: Labelling and Control of the Honey Production Process" organised by the Marche Region and ASSAM (Service Agency for the Agricultural and Food Sector of the Marche Region). Jesi, Italy

6/04/2006

Peer reviews

10/12/2013 For Journal of Medical microbiology review of the paper JMM/2013/069559
26/05/2013 For Journal of Medical microbiology review of the paper JMM/2013/060525
3/3/2012 For Journal of General Virology review of the paper VIR/2012/042317
5/1/2010 For the United States-Israel Binational Agricultural Research Development Fund (BARD) I peer reviewed the project proposal IS-4290-10

Professional development courses

De novo assembly. Organised by The Genome Analysis Centre (TGAC) -Norwich Research Park (Norwich). 3 to 6/3/2014
Winter Event- Advances in Ion Torrent™ Next-Generation Sequencing webinar series. Organised by Life Technologies 19/2/2014.
Risk Assessment – Bio/Med/Vet. University of Surrey 12/02/2014.
Emerging and Re-emerging Infectious Equine Diseases. Organised by University of Surrey-FHMS on 15/2/2013
Since 2011 I regularly attend lessons (iTunesU) from the podcast "**Next Generation Sequencing**" held by the Smithsonian, National Museum of Natural History.
Podcast W3310 **Biology-Virology**. Held by the Columbia University 2011