



PERSONAL INFORMATION

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EDUCATION:

Habilitation, University of Porto, 2010

Doutor em Ciências Veterinárias (equivalência), University of Porto, 1998

Ph.D. Immunology, Cornell University, 1995

M.Sc. Veterinary Microbiology, UK, 1984

Veterinary Degree, University Eduardo Mondlane, 1981

WORK EXPERIENCE

2011-Present- Associate Professor with Habilitation, University of Porto,

2011. Microbiology and Infectious Diseases, Veterinary Medicine 2000 –

2011- Associate Professor, University of Porto,

1997 – 2000- Assistant Professor, University do Porto,

1995 – 1997- Post-Doc Associate, Cornell University,

1993 – 1995- Teaching Assistant, Cornell University,

1984 – 1989- Assistant - University Eduardo Mondlane

1981 – 1984- Junior Assistant University Eduardo Mondlane,

MAIN RESEARCH INTERESTS

Infectious Diseases, Microbiology, Pathogenesis, Epidemiology.

AREAS OF INTEREST:

Zoonosis, Emerging Diseases, Public Health, One Health, Molecular Methods, Antimicrobial Resistance, Milk Quality.

SUPERVISIONS**POST-DOCS:**

“PlatUS - Plataforma Uma Saude: Diálogos na promoção do desenvolvimento sustentável e da saúde pública”,

“Investigation of new molecular approaches for an improved diagnosis and typing of pathogenic *Prototheca* strains. Identification and characterization of *Prototheca* virulence markers to be used as therapeutic models on animal and human health”,

“Characterization of the interactions between Bovine herpesvirus type-1 (BHV-1) with the bovine reproductive system and genetic characterization of BHV-1 field isolates in Portugal”.

PhDs: “Addressing the Phage therapy of bovine mastitis by *Staphylococcus aureus*”, “ Borna Virus infection in companion and wildlife birds in Portugal”, “The European rabbit and *Lepus europaeus* genome: major natural reservoir for virus’s coding genes of men and animals?”, “Canine parvovirus evolution: a characterization of emerging variants from natural infections”, “New Platforms for the detection and typing of *Leptospira* in clinical samples”, “Cross-species transmission of Infectious Diseases: A genomic approach tracking Brucellosis in Wildlife, Livestock and Humans”, “A contribution to the understanding of virus-host adaptation and co-evolution of Myxoma virus (MV) and rabbit haemorrhagic disease virus (RHDV) in their natural host, the wild rabbit (*Oryctolagus cuniculus*)”, “Infections by *Prototheca*: pathogenesis and Public Health issues”, “*Mycoplasma bovis*: Epidemiologic studies in Dairy farms of the Entre-Douro e Minho”, “Canine Parvovirus – Genetic Characterization and Immunizing Strategies” “Estudios Observacionales de Agentes Infecciosos Asociados a Ineficacia Reproductiva en Exploraciones de Ganado Vacuno Lechero”.

M.Sc: “Contribuição para o estudo da Febre Catarral Maligna em Portugal”, “Inspeção Sanitária: Harmonização e Reavaliação Permanentes?”, “Relevância da presença de *Staphylococcus coagulase* positivo (enterotoxigénico) em preparados de carne (salame)”, “A seroprevalence study of antibodies against a novel canine norovirus in canine and human populations”, “Caracterização fenotípica e genotípica de isolados de *E. coli* obtidos de mastites bovinas”, “Estudo preliminar para a avaliação da incidência

de Parvovírus Canino na população portuguesa de lobo: potencialidades e limitações”, “Hemoparasitoses em Bovinos na região de Portalegre”, “Characterization of β -lactam resistance in *Escherichia coli* isolates from bovine mastitis – an approach on PCR optimization”.

RESEARCH ACTIVITIES

COMPLETED PROJECTS

- Host-pathogen interaction: the Rabbit haemorrhagic disease and the European brown hare syndrome. Projecto Ref: PTDC/CVT/108490/2008
- Development of methods to increase the fertilizing ability of chilled and frozen stallion semen: a multidisciplinary approach. Projecto Ref: PTDC/CVT/108456/2008.
- Deciphering the mechanisms of rabbit genetic resistance to myxomatosis and rabbit haemorrhagic viral disease. Projecto Ref: POCTI/BIA-BDE/61553/2004.
- Rabbit Haemorrhagic Disease (RHD): Molecular Biology of Resistance and Transmission of Calicivirus. Projecto Ref: POCTI/CVT/66656/2006.
- Estudos imunobiológicos em modelos murinos de infecção por *Neospora caninum* para o desenvolvimento de novas estratégias de vacinação. Projecto Ref: POCTI / 38795 / CVT / 2001.
- Bovine Viral Diarrhea Virus (BVDV): diagnosis, genotype characterization, vaccine efficacy and transmission studies. Projecto Ref:33421/99, FCT. 1999.
- Diagnosis, Isolation and Molecular Epidemiology of CAEV: A Goat Retrovirus. Projecto Ref: POCTI/36245/CVT/99.
- *Neospora caninum* infection: Aspects of diagnostic, immunobiology, epidemiology and therapeutics. Projecto Ref: POCTI/36246/CVT/99.
- Parvovirose Canina. Protocolo de Colaboração Científica entre o ICBAS, e a IntervetPortugal. (2007-2009)
- Qualidade do Leite. Protocolo de Colaboração Científica com a COOPERATIVA AGRÍCOLA DE VILA DO CONDE. (2006-2009). Programa de Qualidade do Leite.
- Estudo da prevalência de *Mycoplasma* spp. como agentes etiológicos de Mastites em bovinos leiteiros da região de Entre-Douro e Minho. PROTOCOLO DE COOPERAÇÃO PEDAGÓGICA E CIENTÍFICA com a Bayer Portugal SA, SERVIÇOS VETERINÁRIOS DE APOIO EXPLEITE, UNIPESSOAL LTDª (2005-2008).

PATENTS

Gertrude Thompson, Eliane Silva, Sara Marques, Hugo Osório, Júlio Carvalheira. HCV Homolog Fragments, Cell-Lines and Applications Thereof. International patent reference: PCT/IB2013/052636, 2013/04/02 – Provisional Application

PEER-REVIEWED PUBLICATIONS

Pinto, M. C., V. Rondahl, M. Berg, E. Ågren, J. Carvalheira, **G. Thompson** & J. J. Wensman. 2018. **Detection and phylogenetic analysis of parrot bornavirus 4 identified from a Swedish Blue-winged macaw (*Primolius maracana*) with unusual nonsuppurative myositis.** *Infection Ecology & Epidemiology*, 9:1, 1547097, DOI: 10.1080/20008686.2018.1547097

Silva, A. A., F. F. Silva, D. A. Silva, H. T. Silva, C. N. Costa, P. S. Lopes, R. Veroneze, **G. Thompson**, J. Carvalheira. 2019. **Genotype imputation strategies for Portuguese Holstein cattle using different SNP panels.** *Czech Journal of Animal Science*, 64: 377–386. <https://doi.org/10.17221/120/2019-CJAS>

Silva, A.A., D.A. Silva, F.F. Silva, C.N. Costa, P.S. Lopes, A.R. Caetano, **G. Thompson**, J. Carvalheira. 2019. **Autoregressive single-step test-day model for genomic evaluations of Portuguese Holstein cattle.** *J. Dairy Sci.* 102. <https://doi.org/10.3168/jds.2018-15191>.

da Silva, D. A., C. N. Costa, A. A. da Silva, F. F. e Silva, P. S. Lopes, G. G. dos Santos, **G. Thompson**, J. Carvalheira. 2019. **Unknown parent and contemporary groups for genetic evaluation of Brazilian Holstein using autoregressive test-day models.** *Livestock Science* 220 (2019) 1–7. doi.org/10.1016/j.livsci.2018.11.022.

Salem, M. M. I., **G. Thompson**, S. Chen, A. Beja-Pereira, J. Carvalheira. 2018. **Linkage disequilibrium and haplotype block structure in Portuguese Holstein cattle.** *Czech J. Anim. Sci.*, 63, 2018 (2): 61–69. Doi: 10.17221/56/2017-CJAS.

Jacques Le Pendu; Joana Abrantes, PhD; Stéphane Bertagnoli; Jean-Sébastien Guitton; Ghislaine Le Gall-Reculé; Ana Margarida Lopes; Stéphane Marchandau; Fernando Alda; Tereza Almeida; Alves Paulo Célio; Juan Bárcena; Galina Burmakina; Esther Blanco; Carlos Calvete; Patrizia Cavadini; Brian Cooke; Kevin Dalton; Miguel Delibes Mateos; Wieslaw Deptula; John Sebastian Eden; Fang Wang; Catarina C Ferreira; Paula Ferreira; Pilar Foronda; David Gonçalves; Dolores Gavier-Widén; Robin Hall; Beata Hukowska-Szematowicz; Peter Kerr; John Kovaliski;

Antonio Lavazza; Jackie Mahar; Alexander Malogolovkin; Raquel M Marques; Sara Marques; Aaron Martin-Alonso; Pedro Monterroso; Greg Mutze; Aleksija Neimanis; Paulina Niedzwiedzka-Rystwej; David Peacock; Francisco Parra; Mara Rocchi; Carlos Rouco; Nathalie Ruvoën-Clouet; Eliane Silva; Diogo Silvério; Tanja Strive; **Gertrude Thompson**; Beata Tokarz-Deptula; Pedro Esteves; Sacramento Moreno. (2017). **Proposal for a unified classification system and nomenclature of lagoviruses**. July 2017, Journal of General Virology 98: 1658-1666, doi: 10.1099/jgv.0.000840

Carla Miranda, Nuno Santos, Colin Parrish, **Gertrude Thompson** (2017). **Genetic characterization of canine parvovirus in sympatric free-ranging wild carnivores**. Journal of Wildlife Diseases. October 2017, Vol. 53, No. 4, pp. 824-831

Carla Miranda, Maria João Vieira, Eliane Silva, Júlio Carvalheira, Colin R. Parrish, **Gertrude Thompson** (2017). **Genetic analysis of FPV full-length VP2 gene in domestic cats between 2006-2008 and 2012-2014, Portugal**. Transboundary and Emerging Diseases (doi: 10.1111/tbed.12483) 64, Pages 1178-1183

Miranda C, Coelho C, Vieira-Pinto M, **Thompson G** (2016). **Porcine hokovirus in wild boar in Portugal**. Archives of Virology (doi: 10.1007/s00705-015-2730-6

Carla Miranda, Colin R. Parrish, **Gertrude Thompson** (2016). **Epidemiological evolution of canine parvovirus in the Portuguese domestic dog population**. Veterinary Microbiology. 183:37-42 (doi: 10.1016/j.vetmic.2015.11.037).

Carla Miranda, **Gertrude Thompson** (2016). **Canine parvovirus in vaccinated dogs: a field study**. Veterinary Record. 178:397 (doi: 10.1136/vr.103508).

Carla Miranda, **Gertrude Thompson** (2016). **Canine parvovirus: the worldwide occurrence of antigenic variants**. Journal of General Virology. 97(9):2043-2057 (doi: 10.1099/jgv.0.000540).

Figueiredo, J., Miranda, C., Souto, R., Silva, E., Fafetine, J., **Thompson, G** (2016). **Genetic characterization of canine parvovirus type 2 subtypes in Maputo, Mozambique**. Archives of Microbiology (doi:10.1007/s00203-016-1320-7).

Ricardo Marcos, Fernanda Malhão, Joana Santos, Sara Marques, **Gertrude Thompson**, Marta Santos (2016). **The cryptic Cryptococcus**. Veterinary Clinical Pathology 45/4.

Costa, C. N., G. G. Santos, J. A. Cobuci, G. Thompson and **J. Carvalheira**. 2015. **Genetic parameters for test day somatic cell score in Brazilian**

Holstein cattle. Genetics and Molecular Research, 14 (4): 19117 - 19127.
DOI: 10.4238/2015.December.29.21.

Eliane Silva, Hugo Osório & **Gertrude Thompson.** 2015. **Hepatitis C-like viruses are produced in cells from rabbit and hare DNA.** Scientific Reports | 5:14535 | DOI: 10.1038/srep14535

Carla Miranda, Júlio Carvalheira, Colin R. Parrish, **Gertrude Thompson.** 2015. **Factors affecting the occurrence of canine parvovirus in dogs.** Veterinary Microbiology. In Press

S. Marques, V. A. R. Huss, K. Pfisterer, C. Grosse, and **G. Thompson.** 2015. **Internal transcribed spacer sequence-based rapid molecular identification of *Prototheca zopfii* and *Prototheca blaschkeae* directly from milk of infected cows.** J Dairy Sci. 2015 May;98 (5):3001-9.

Guimaraes T, Lopes G, Pinto M, Silva E, Miranda C, Correia MJ, Damasio L, **Thompson G**, Rocha A (2015) **Colloid centrifugation of fresh stallion semen before cryopreservation decreased microorganism load of frozen-thawed semen without affecting seminal kinetics.** Theriogenology, 83(2): 186-191.

Ana Sofia Ferreira, Pedro Costa, Teresa Rocha, Ana Amaro, Maria Luísa Vieira, Ahmed Ahmed, **Gertrude Thompson**, Rudy A. Hartskeerl, João Inácio. 2014. **Direct detection and differentiation of pathogenic *Leptospira* species using a multigene targeted real time PCR approach.** PLoS One. 2014 Nov 14;9(11):e112312. doi: 10.1371/journal.pone.0112312

Guimarães T, Miranda C, Pinto M, Silva E, Damasio L, Costa AL, Correia MJ, Duarte JC, Cosinha C, Lopes G, **Thompson G**, Rocha A (2014) **Effect of breeding activity on the microflora of the external genitalia and in the semen of stallions, and the relationship between microorganisms on the skin and on the external genitalia.** Reproduction in Domestic Animals, 49(6): 926-933.

Ana M Lopes, Sara Marques, Eliane Silva, Maria J Magalhães, Ana Pinheiro, Paulo C Alves, Jacques Le Pendu, Pedro J Esteves, **Gertrude Thompson**, Joana Abrantes. 2014. **Detection of RHDV strains in the Iberian hare (*Lepus granatensis*): earliest evidence of rabbit lagovirus cross-species infection.** Vet. Res. 24;45:94.

Miranda, C, Parrish, CR, **Thompson, G.** 2014. **Canine parvovirus type 2c infection in a cat with severe clinical disease.** J Vet Diagn Invest, Vol. 26, Number 3, May.

Pinho, L., **G. Thompson,** M. Machado, J. Carvalheira. 2013. **Management practices associated with the bulk tank milk prevalence of *Mycoplasma* spp. in dairy herds in Northwestern Portugal.** Preventive Veterinary Medicine, Volume 108, Issue 1, pp 21-27.

Silva E, Marques S, Osório H, Carvalheira J, **Thompson G** (2012). **Endogenous Hepatitis C Virus Homolog Fragments in European Rabbit and Hare Genomes Replicate in Cell Culture.** PLoS ONE 7(11): e49820. doi:10.1371/journal.pone.0049820

Jagielski T, Buzzini P, Lassa H, Malinowski E, Branda E, Turchetti B, Polleichtner A, Roesler U, Lagneau PE, Marques S, Silva E, **Thompson G,** Stachowiak R, Bielecki J (2012). **Multicenter e-test evaluation of in vitro activity of conventional antifungal drugs against European bovine mastitis *Prototheca* sp. isolates.** J. Antimicrob. Chemother. 67(8): 1945-1947

Luís Pinho, **Gertrude Thompson,** Ricardo Rosenbusch, Júlio Carvalheira. 2012. **Genotyping of *Mycoplasma bovis* isolates using Multiple-Locus Variable-Number Tandem-Repeat Analysis.** Journal of Microbiological Methods, 88: 377-385. (Doi: 10.1016 / j.mimet.2012.01.003).

Tomás Merchán, Gregorio Rocha , Fernando Alda, Eliane Silva, **Gertrude Thompson,** Sebastián Hidalgo de Trucios, Albert Pagés. 2011. **Detection of rabbit haemorrhagic disease virus (RHDV) in nonspecific vertebrate hosts sympatric to the European wild rabbit (*Oryctolagus cuniculus*).** *Infection, Genetics and Evolution*, 11: 6, 14691474

Alexandra Müller, Eliane Silva, Nuno Santos, and **Gertrude Thompson.** 2011. **Domestic Dog Origin of Canine Distemper Virus (CDV) in free-ranging Wolves in Portugal as revealed by Hemagglutinin Gene Characterization.** *J. Wildlife Diseases*, 47 (3), 725-729

Sara Marques, Eliane Silva, Júlio Carvalheira, **Gertrude Thompson.** 2010. **Temperature sensibility of *Prototheca blaschkeae*.** *Journal of Dairy Science.* 93 (11): 5110-5113

Marques S., Silva E., Carvalheira J., **Thompson G.** 2010. **Phenotypic characterization of mastitic *Prototheca* spp. isolates.** Research in Veterinary Science. 89: 5–9.

Costa, C. N., J. Carvalheira, J. A. Cobuci, A. F. Freitas and **G. Thompson.** 2009. **Estimation of genetic parameters of test day fat and protein yields in Brazilian Holstein cattle using an autoregressive multiple lactation animal model.** South African Journal of Animal Science. 39(Supplement 1):165-168

Marques S., Silva E., Carvalheira J., **Thompson G.** 2009. ***In Vitro* Susceptibility of *Prototheca* to pH and Salt Concentration.** Mycopathologia. doi : 10.1007/s11046009-9254-0.

Thompson, G., E. Silva, S. Marques, A. Müller and J. Carvalheira. 2009. **Algaemia in a dairy cow by *Prototheca blaschkeae*.** Medical Mycology. 47(5): 527-531.

Muller, A, E. Silva, J. Abrantes, P.J. Esteves, P.G. Ferreira, J.C. Carvalheira, N. Nowotny, **G. Thompson.** 2010. **Partial sequencing of recent Portuguese myxoma virus field isolates exhibits a high degree of genetic stability.** Veterinary Microbiology. 140, 161-166.

Pinho, L., **Thompson, G.,** Machado, M., Silva, E., Santos, A., González, R. N., Carvalheira, J. 2009. **Isolation of *Mycoplasma capricolum* subsp. *capricolum* from a calf in a dairy herd in Portugal** Veterinary Record. 164: 216 – 217.

P. J. Esteves, J. Abrantes, M. Carneiro, A. Muller, **G. Thompson** and W. van der Loo. 2008. **Detection of positive selection in the major capsid protein VP60 of the rabbit haemorrhagic disease virus (RHDV).** Virus Research. Volume 137, Issue 2, Pages 253-256.

Sousa, S., **G. Thompson,** E. Silva, L. Freire, D. Lopes, J. M. C. da Costa, A. Castro, J. Carvalheira, N. Canada. 2009. **Determination of the more adequate Modified Agglutination Test cut-off for serodiagnosis of *Toxoplasma gondii* infection in sheep.** ZOOZOSES AND PUBLIC HEALTH. 56 (5): 252-256.

Muller, A., Freitas, J., Silva, E., Le Gall-Reculé, G., Zwingelstein, F., Abrantes, J., Esteves, P. J., Alves, P. C., van der Loo, W., Kolodzieik, Y., Nowotny, N., & **Thompson, G.** 2009. **Evolution of Rabbit haemorrhagic disease virus (RHDV) in wild rabbits (*Oryctolagus***

cuniculus) in the Iberian Peninsula. Veterinary Microbiology. 135: 368–373.

Ana M. Neves, **Gertrude Thompson**, Júlio Carvalheira, José Costa Trindade, José Rueff, Joaquim Machado Caetano, James W. Casey and Sylvie Hermouet. 2008. **Detection and quantitative analysis of human Herpesvirus in pilocytic astrocytoma.** Brain Research. Brain Research. Volume 1221, Pages 108-114.

Sara Marques, Eliane Silva, Christine Kraft, Júlio Carvalheira, Arnaldo Videira, Volker A. R. Huss, **Gertrude Thompson**. 2008. **Bovine mastitis associated with *Prototheca blaschkeae*.** Journal of Clinical Microbiology. 1941–1945.

Maria João Vieira, Eliane Silva, João Oliveira, Ana Luísa Vieira, Nicola Decaro, Costantina Desario, Alexandra Muller, Júlio Carvalheira, Canio Buonavoglia, and **Gertrude Thompson**. 2008. **Canine parvovirus type 2c infection in central Portugal.** Journal of Veterinary Diagnostic Investigation. 20: 488-491.

Maria João Vieira, Eliane Silva, Costantina Desario, Nicola Decaro, Júlio Carvalheira, Canio Buonavoglia, and **Gertrude Thompson**. 2008. **Natural coinfection with 2 parvovirus variants in dog with gastrointestinal signs.** Emerging Infectious Diseases. Vol 14, Nº 4, 678-679.

Cortez, P. P., Carvalheira, J., Paupério, S., & **Thompson, G.** 2008. **Prevalence study of ovine herpesvirus-2 in the north-west of Portugal.** Veterinary Record. 282-284.

Abrantes, J., Esteves, P. J., Carmo, C. R., Müller, A., **Thompson, G.**, & van der Loo, W. 2008. **Genetic characterization of the chemokine receptor CXCR4 gene in lagomorphs: comparison between the families *Ochotonidae* and *Leporidae*.** International Journal of Immunogenetics. 35(2):111-7.

Decaro, N., Desario, C., Addie, D. D., Martella, V., Vieira, M. J., Elia, G., Zicola, A., Davis, C., **Thompson, G.**, Thiry, E., Truyen, U., and Buonavoglia, C. 2007. **Molecular Epidemiology of Canine Parvovirus, Europe.** Emerging Infectious Diseases. 13, 1222 - 1224.

Marques S., Silva E., Carvalheira J., **Thompson G.** 2006. **In vitro antimicrobial susceptibility of *Prototheca wickerhamii* and**

***Prototheca zopfii* isolated from bovine mastitis.** JOURNAL OF DAIRY SCIENCE. 89: 4202-4204.

Silvia C. Barros, Fernanda Ramos, Sonia Pauperio, **Gertrude Thompson** and Miguel Fevereiro.2006. **Phylogenetic analysis of Portuguese bovine viral diarrhoea virus.** Virus Research. 118 (1-2): 192-195.

Canada N, Meireles S, Rocha A., Sousa S, **Thompson G.**, Dubey J.P., Correia da Costa J.M.. (2002). **First Portuguese isolate of *Neospora caninum* from aborted fetus from a dairy herd with endemic neosporosis.** Veterinary Parasitology. 110(1-2):11-5.

Cortez P., P. Dias Pereira, A. Cortez, **G. Thompson.** 2001. **First confirmed case of malignant catarrhal fever in a cow in Portugal.** Veterinary Record. 149(18): 558-9.

Thompson, G., N. Canada, M. C. Topa, E. Silva, F. Vaz, A. Rocha. 2001. **First confirmed case of *Neospora caninum*-associated abortion outbreak in Portugal.** Reproduction in Domestic Animals. 36: 1-4.

Naqi, S., **G. Thompson**, B. Bowman, H. Mohammed. 2001. **The Exacerbating Effect of Infectious Bronchitis Virus Infection on the Infectious Bursal Disease VirusInduced Suppression of Opsonization by *Escherichia coli* Antibody in Chickens.** Avian Diseases. 45:52-60.

Thompson, G., H. Mohammed, B. Bauman and S. Naqi. 1997. **Systemic and local antibody responses to Infectious Bronchitis Virus in chickens inoculated with Infectious Bursal Disease Virus and Control chickens.** Avian Diseases. 41(3):519- 527.

Thompson, G., and S. Naqi. 1997. **Cytotoxic activity of cells recovered from respiratory tracts of chickens inoculated with Infectious Bronchitis Virus.** Avian Diseases. 41(3):690-694.

BOOK CHAPTERS

Ana Sofia Ferreira, Maria das Neves Paiva-Cardoso, **Gertrude Thompson**, João Inácio.2014. **Deteção de *Leptospira* em amostras biológicas de animais pela reação de polimerase em cadeia em tempo real em formato multiplex.** In Abordagens Moleculares em

Veterinária: Como desvendar a etiologia e a epidemiologia da infecção.
Eds. LIDEL-EDIÇÕES TÉCNICAS, LDA. ISBN: 978-989752-034-1