AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2016

Turno de acceso general

Nombre: ALVAREZ SANCHEZ, JULIO
Referencia: RYC-2016-20422
Área Científica: Ganadería y Pesca
Correo Electrónico: jalvarez@visavet.ucm.es

Título:

Aplicación de técnicas analíticas cuantitativas para la prevención, control y erradicación de enfermedades infecciosas de los animales

Resumen de la Memoria:

My career has been focused on the study of the epidemiology of livestock infectious diseases through the application of quantitative analytical techniques. My research is centered on the most applied aspects of the epidemiological analysis of data from experimental and observational studies to i) understand the transmission dynamics of pathogens, ii) develop and optimize diagnostic techniques for early and effective detection, and iii) evaluate and monitor disease control and eradication efforts at the herd, regional or national levels. I believe that the information coming from the successful study of these three sub-objectives, targets of most of my papers and projects, can help to inform decision-makers and ultimately guide approaches aiming at the eradication and prevention of endemic and exotic threats.

Regarding my main research lines, I have developed an extensive research activity on control strategies against animal tuberculosis. Since my PhD dissertation I have co-authored 30 scientific articles looking at the development, application and evaluation of diagnostic and control strategies against tuberculosis in domestic ruminants and wildlife, working in close collaboration with official veterinary services and international partners. This research line, that also included co-advising one PhD student (PhD defense in 2016), is ongoing through my work as advisor of the European Reference Laboratory for Bovine Tuberculosis.

During my first post-doc appointment I also headed a new research line on animal brucellosis as PI of a national project that involved the design of new diagnostic and prophylactic approaches for domestic ruminants, as well as the development of modeling approaches to assess the efficacy of brucellosis control strategies at the regional level. This new research interest was translated into 7 scientific articles (first author in 1 and last in 5 papers) in collaboration with national official veterinary services and partners from Egypt, and another PhD thesis successfully defended on 2014 that I supervised.

I was also in charge of a research line looking into the application of molecular tools for the study of the epidemiology of pathogenic Escherichia coli in animals and humans through my participation in a EU project as part of my post-doc contracts at the IREC and IRYCIS research institutes. This work was translated in another PhD thesis in which I was co-advisor (defended in 2016) and 6 scientific publications (last author in 4).

In parallel I led or collaborated on various projects on other zoonoses (Q fever, leishmaniosis, MRSA) and on paratuberculosis, publishing 14 scientific articles as a result.

Thanks to my incorporation in the swine group at the University of Minnesota I started my research activity in the epidemiology of swine diseases, co-authoring 8 publications (4 as first and 2 as second author) on different aspects of diagnosis, transmission, control and evaluation of the impact of PED, PRRS, and swine influenza among others.

Finally, I started in 2015 a new research line on salmonellosis control and monitoring of antimicrobial resistance after securing more than $300,000 and two PhD students through several projects selected in competitive calls. This line, that involves the application of modeling techniques in combination with whole genome sequencing, has already resulted in 2 publications.

Resumen del Currículum Vitae:

Julio Alvarez□s research trajectory has always been focused on the study of the epidemiology of infectious diseases, with an emphasis on zoonotic pathogens. After his PhD defense in 2008, looking at the diagnosis of infections caused by members of the Mycobacterium tuberculosis and M. avium complexes and their molecular characterization, which was awarded with the □Premio Extraordinario de Doctorado□ and the Syva Award to the best thesis on animal health, he has held multiple positions with that common objective. He first served as head of the Unit of Neglected and Emerging Diseases in the VISAVET Health Surveillance Center, Spain, for two years. He then took a post-doctoral position at the Spanish wildlife research institute IREC, focusing on the study of zoonotic infectious diseases in wildlife, including the assessment of novel diagnostic techniques. After that, he held a post-doctoral position at the Research Institute Ramón y Cajal (IRYCIS), at the Ramón y Cajal University Hospital, looking at the epidemiology of bacterial zoonotic diseases and factors promoting its emergence in the human/wildlife/livestock interface. In 2014 he moved to the University of Minnesota (USA) first as a Research Associate, and since 2015 in a faculty position (Assistant Professor), where he has his own research line focused on the application of state-of-the-art quantitative techniques for the design, implementation, monitoring and evaluation of prevention and control strategies against infectious diseases, with special emphasis in zoonotic diseases (tuberculosis, brucellosis, foodborne salmonellosis, etc.) and diseases affecting livestock production (paratuberculosis, PRRS, PED, swine influenza).

His scientific activity has been translated into 88 papers published in the peer-reviewed literature (1,266 total citations), 55 published in the last five years (2012-2016). He has co-authored 29 papers as first or last author (h-index=20), has successfully directed three PhD students and is currently the advisor of another five. He is or has been PI of five grants (>400,000 □) funded through competitive calls in Spain and the USA, and has participated in eight European projects. Through this international activity he has built a strong network of

colleagues in different fields with whom he maintains active collaborations. He serves as scientific editor in 3 indexed scientific journals, acts as advisor of the European Laboratory for Bovine Tuberculosis and is a founding member of the Epidemiology Working Group of the Spanish Ministry of Agriculture, as well as scientific regular reviewer for 16 indexed journals and has reviewed research projects for 6 agencies from 6 countries. He has participated in two EFSA scientific opinions (one as a hearing expert and another as member of the working group) and has developed part of his scientific career (through scientific training stays of more than 8 weeks or as hired staff) in six countries, including 49 months as a post-doc/faculty in the USA since 2010 (University of California Davis, University of Minnesota). He also got a post-graduate in Biostatistics applied to health sciences in 2012, has taught several courses on basic and advanced epidemiology for DVM and post-graduate education, and has been coordinator of the core course on Epidemiology for veterinary students at the University of Minnesota.

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CONVOCATORIA 2016

Turno de acceso general

Nombre: MACH CASELLAS, NURIA
Referencia: RYC-2016-19365
Área Científica: Ganadería y Pesca
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Título:

Interplay between host functional genomics and microbiota:Systems Biology

Resumen de la Memoria:

My research career has followed a curriculum that spans the natural science, bringing together subjects such as animal science, nutrition, functional genomics, immunology, and systems biology.
After five years of Veterinary Medicine study at Autonomous University of Barcelona (UAB), in 2005, I got the FI fellowship from the Autonomous Government of Catalonia to perform my PhD studies in beef nutrition and behaviour in the Department of Animal and Food Science at UAB, obtaining the Extraordinary PhD award.
Afterwards, in February 2009, I obtained the 2-years Beatriu de Pinós fellowship to perform a post-doc at the Wageningen University on the emerging field of nutrigenomics. In parallel, I was recruited as lecturer in nutrigenomics in the Master of Food and Health Science at the Open University of Catalonia. Accordingly, I have obtained the AQU accreditation for tenured assistant professor in 2011.
The scientific experience gathered at Wageningen University opened the opportunity to move at INRA (France), where I completed two years of post-doc in systems biology. In June 2013, I got a permanent research position in the integrative biology and equine genetics team at INRA. Since then, I have lead three R+D+I national projects based on the functional interaction of gut microbial ecosystem in horses.
I am coauthor of 34 articles indexed in SCI (16 as a first, 10 as second, and 8 as last author). I also have published 16 peer-reviewed articles directed to general public and two pedagogical books. Approximately 60% of my publications are the result of collaborative work with teams in other countries.
I now consider myself an interdisciplinary scientist, with international experience, proficiency in 5 different languages, and competence in different fields ranging from fundamental to practical research. Additionally, I have been able to mentor 33 master students of different generations, armed with academic knowledge and enthusiasm, and offer professional advice and help them divulgate science in the society.

Resumen del Currículum Vitae:

#WORK EXPERIENCE

Permanent research position in functional genomics at INRA, France. Sept 2013-present.

Post-doc in functional metagenomics at INRA, France. Oct 2012-Aug 2013. Supervisors: Dr. Patricia Lepage and Dr. Hervé Blottière

Post-doc in inmmunogenetics at INRA, France. Jul 2011- Sept 2012. Supervisors: Dr. Claire Rogel-Gaillard

Post-doc in nutrigenomics at Wageningen University, Animal Breeding and Genomics Centre Group, The Netherlands. Feb 2009- May 2011. Supevisor: Dr. Prof. Mari Smits. Collaboration with INRA-Agrocampus Ouest PEGASE, Animal Genetics Group, Rennes, France, Feb 2011. Supervisor: Dr. Sandrine Lagarrigue

#EDUCATION

Bachelor's Degree in Humanities, Open University of Catalonia, Barcelona, Spain. Sep 2007-Feb 2012

European Doctor of Philosophy (PhD) in Food and Animal Science, Autonomous University of Barcelona, Barcelona, Spain. Jan 2004-December 16th 2008. Supervisor: Dr. Maria Devant (IRTA). Cum laude qualification and extraordinary doctorate award. Collaboration with the Royal Veterinary and Agricultural University of Copenhagen, Food Science Department, Denmark, 2006-2007. Supervisor: Dr. Anders Karlsson and Dr. Sussane Knöchel. Collaboration with Wageningen UR Livestock Research, Animal Breeding and Genomics Centre Group, Lelystad, 2008. Supervisor: Dr. Marinus te Pas

Postgraduate diplome in Development and International Cooperation, Polytechnic University of Barcelona, Barcelona, Spain. Jan 2004- Sep 2006. Supervisor: Ferran Garcia

Master in Animal Science, Autonomous University of Barcelona, Barcelona, Spain. Jan 2004-Jan 2006. Supervisors: Dr. Maria Devant

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Turno de acceso general

Bachelor□s Degree in Veterinary Science, Autonomous University of Barcelona, Barcelona, Spain. Sep 1998-Sep 2003

#TEACHING EXPERIENCE
Master Level:
~580h teaching Nutrigenomics, and Nutrigenetics in the Master of Nutrition and Health, Open University of Catalonia, Barcelona, Spain. 2009-2016.
AQU accreditation for tenured assistant professor (01.07.2011)

Master Thesis Supervision:
~720h supervising 33 master students in the Master of Nutrition and Health, Open University of Catalonia, Barcelona, Spain. 2009-2016.

#RESEARCH SKILLS
Data analysis
Data manipulation with Perl (expanding knowledge), unix commands, and R
Biostatistical analysis through Bayesian and frequentist approaches with R
Microarray and RNAseq based transcriptome and miRNome analysis
Metagenomic, metabolomic and DNAseq analysis, SNP and VC identification

Laboratory
Animal handling and restraint, drugs administration, blood and biopsy sampling
Extraction of DNA, RNA and proteins from tissues
Design and performance of proteomics assays using SELTI-TOF-TOF
Extraction, purification and analysis of fatty acids by gas chromatography
Extraction and determination of leukocytes surface antigens by flow citometry
PCR and RT-qPCR

#MAIN STAYS ABROAD

INRA (France). 01.07.2011 / 31.08.2013 (25 months). Post-doc.

Wageningen University (The Netherlands). 01-02-2009 / 31-05-2011 (28 months). Post-doc.

Royal Veterinary and Agricultural University of Copenhagen (Denmark).
01-03-2006 / 30-06-2006 and 01-02-2007 / 01-05-2007 (7 months). Pre-doc.

#PUBLICATIONS

Total number of publications: 34 (16 as first, 10 as last and 4 as second author)
Total number of ISI-citations:329
Articles with citation: 28
Average number of citations per article: 11
h-index: 10
Total number of oral present: 19

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Turno de acceso general

Nombre: IBAÑEZ ESCRICHE, NOELIA
Referencia: RYC-2016-19764
Área Científica: Ganadería y Pesca
Correo Electrónico: noeibes@gmail.com

Título:

Quantitative analysis of omic/pheno traits: Application to animal breeding and genetics

Resumen de la Memoria:

I am a senior researcher, with over 14 years experience in the field of quantitative genetics and animal breeding. During my scientific career, I have worked in national and international research institutions (Spain, Denmark, USA and UK) and I have participated in twelve research projects (Principal Investigator of five). Into these projects, I have developed my own research line of quantitative analysis of omic/final phenotypic traits applied to animal breeding and genetics and it has two main strands:

1) New methodologies and novel traits.
My scientific career is strongly focused on the development and use of new methodologies for quantitative genetic analysis. This research line has been mainly motivated by my interest on new traits and innovative strategies of selection for animal breeding schemes. The study of novel traits usually involves original genetic models and the development of statistical software for their quantitative analysis. The principal outcomes are collected in 26 peer reviewed publications, and it has strongly contributed to a better understanding of the genetic background of the target traits as well as optimization of the genetic prediction. My work on Environmental Variance trait (a measure of the environmental sensitivity/robustness) had encouraged successful national and international academic collaborations within the animal breeding field, and has evolved in two successful divergent selection experiments. Also, Crossbred and GSEV models have been applied in breeding strategies of relevant breeding companies.

2) Exploit omic information (genomics, transcriptomics, metabolomics)
In the last years, I have been interested on the application of new omic" information in the animal breeding field. The recent biotechnological development has provided massive genomic data, and this data, coupled with new methodological framework, offers new opportunities. The possibility of using high-density genotypes on the genetic evaluations, defined as Genomic Selection (GS), can allow better genetic predictions as well as new selection schemes. Nevertheless, the availability of these genotypes in combination with detailed phenotypes can be also used for powerful Genome-Wide Associations (GWAS), identifying regions of the genome directly associated with variability in phenotypes. Additionally, developments in genotyping and sequencing accompanied by other sources such as transcriptomics/metabolomics will provide insight into the complex biological processes linking genotype and phenotype. In this context, as part of my research trajectory, I have covered the most important issues raised (22 publications): (i) investigation of genetic control of the meat quality traits in pigs through gene expression and genotype data. These studies have provided a better understanding of the biological process linked with these traits. Moreover, markers suitable of being used in the selection for meat quality in pig have also been identified; (ii) development of new methods that allow a higher flexibility on the statistical analysis for differential expression and GWAS; (iii) GS application, particularly GS across breeds and multi-trait GS have contributed to a paradigm shift in animal breeding. (iv) Currently, I am integrating omic" information to understand how genetic selection for specific traits drives changes at RNA level.

Resumen del Currículum Vitae:

I am a senior researcher at the Roslin Institute (UK) with more than 14 years of experience in the field of quantitative genetics and animal breeding. My PhD (2002-2006) was conducted at the University Polytechnic of Valencia (Spain) and included a total 18 months visit to Prof. Daniel Sorensen lab at the Institute of Agricultural Science (Denmark). The topic of my thesis was on the development of new Bayesian methods for the analysis of the genetic determinism of the environmental sensitivity trait. These findings have played an essential role in breeding schemes and selection experiments of this novel trait. At the end of 2005, I joined the Agricultural Research Institute of Catalonia (IRTA, Spain) as researcher, working on the development of new statistical procedures in animal breeding. The outcomes of this work have successfully been implemented in national breeding companies since 2010. In 2008, I was awarded a Jose Castillejo mobility grant and went to the Iowa State University (USA) to work on the development of genomic evaluation methods for crossbred animals. I regard this work as a milestone in my academic trajectory, earning me international recognition in the animal breeding field, and the publication arisen form this collaboration has been the most referenced paper of my scientific career so far. In 2015, I was awarded a Marie Skłodowska-Curie grant to travel and work at the division of Genetics and Genomics of The Roslin Institute. My current work aims to understand how genetic selection for body weight in mouse drives changes at RNA level, and uses the "omic" information to achieve better phenotypic predictions. Additionally, I lead several national and international research projects with multi-institutional participants. Moreover, I was secretary of the genetics commission of EAAP from 2011 to 2016. Finally, I have 48 peer-reviewed papers (15 of them as first author) and 60 conference papers, some of them as invited speaker.

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Turno de acceso general

Nombre: ARIAS VAZQUEZ, MARIA SOL
Referencia: RYC-2016-21407
Área Científica: Ganadería y Pesca
Correo Electrónico: mariasol.arias@usc.es

Título:

Control de infecciones parasitarias, en especial zoonosis

Resumen de la Memoria:

My research activity has been focused to the control of parasitic infections in animals, especially those responsible of zoonoses, by considering three key points: diagnosis, treatment and prevention. Given that some parasites can not be detected by routine methods (clinical examination, feces), different immunoassays have been applied to the diagnosis of trematodoses (fasciolosis, paramphistomosis, dicroceliosis), gastrointestinal nematodoses (ascariosis, strongylosis) and myiasis (oestrosis, gasterophilosis, rhinoestrosis, cephenemyosis). Both the sensitivity and specificity of the techniques have been improved by using protein liquid chromatography (FPLC), which provided us useful antigens for the diagnosis of paranfistomosis of ruminants, strongyloses and horse myiasis. Accordingly, one recombinant protein from the tegument of Fasciola hepatica has been expressed and demonstrated its suitability for the early diagnosis of infection in ruminants, and completely innovative in horses.

Parasitized animals are in need of deworming, and two approaches should be underlined, first the topical administration of macrocyclic lactones on horses, especially among those indigenous individuals impossible to apply any parasiticide due to the difficult for their proper immobilization; second, the successful treatment against bovine paramphistomosis, by means of two salicylanilides, oxyclozanide and closantel. The effect of deworming was assessed through some immunoenzymatic tests.

Finally, preventive measures to reduce the risk of infection among extensive or semi-extensive livestock are required, due to they can become challenged by some parasites when grazing. We are currently working with harmless and soil saprophytic fungi, which reduce the presence of parasitic stages in the soil. This methodology has been applied to limit the risk of infection by helminths affecting livestock and pets. Specifically, fungal spores have been distributed by directly spreading onto the soil, an even the industrial manufacturing of livestock feedstuff (pelleted feed), through public economic support. The benefits of these strategies conducted to the issuance of two patents, successfully assayed in the autonomous communities of Galicia and Balearic Islands, and also in Lisbon (Portugal).

Resumen del Currículum Vitae:

Licenciada en Veterinaria por la Universidad de Santiago de Compostela. Doctora en Medicina Veterinaria en 2007, con la defensa de la Tesis titulada Obtención de proteínas recombinantes útiles para el diagnóstico de fasciolosis ovina, que le supuso el Premio Extraordinario de Doctorado.

Especialista en Parasitología y Enfermedades Parasitarias en Veterinaria, desarrolla su actividad docente e investigadora en el Departamento de Patología Animal en la Facultad de Veterinaria de Lugo (USC). Está acreditada por ACSUG como Profesora Contratada Doctora. Es miembro de la Sociedad Española de Parasitología desde 2005.

Ha realizado estancias de investigación en facultades de veterinaria nacionales (León, Murcia y Zaragoza) y en centros internacionales, destacando el M.H. Gluck Equine Research Center (Universidad de Kentucky), la Facultad de Medicina Veterinaria de Turín y la de Lisboa.

Co-inventora de dos patentes para el empleo de hongos parasiticidas. Ha realizado publicaciones en diversas revistas nacionales e internacionales indexadas. Co-editora de dos libros, Fungi: Types, Environmental Impact and Role in Disease (2012), y Horses: Breeding, Health disorders and effects on performance & Behaviour (2014).

Actualmente es investigadora del Programa Isidro Parga Pondal (Xunta de Galicia) en el Grupo de Investigación COPAR, Control de Parásitos en animales y personas: diagnóstico, prevención y tratamiento (GI: 2120), (PARASISVETLU), donde hasta la fecha ha dirigido 7 Proyectos de investigación y participado en otros 17 Proyectos de Investigación y 35 Contratos de I+D con Empresas, y ha dirigido diez Tesis Doctorales y 7 Memorias de Licenciatura. Las principales líneas de investigación que desarrolla se orientan a la Epidemiología y diagnóstico de las principales enfermedades parasitarias (especialmente trematodosis y miasis) que comparten animales de renta y silvestres, y al Control biológico de zoonosis parasitarias y de parasitosis del ganado.

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Turno de acceso general

Nombre: LOPEZ OLMEDA, JOSE FERNANDO
Referencia: RYC-2016-20959
Área Científica: Ganadería y Pesca
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Título:

Cronobiología de peces aplicada a la acuicultura

Resumen de la Memoria:

The main line of research of the applicant is focused on the study of biological rhythms in fish. He has developed his research on rhythms of locomotor and feeding behavior as well as rhythms of a number of physiological parameters such as hormones (cortisol, growth hormone, sex steroids,), metabolites (glucose, lactate) and processes such as stress response, growth and reproduction. Besides the basic interests, an important part of his research has been applied to the improvement of culture of several fish species such as the European sea bass, gilthead seabream and Senegalese sole.

The applicant began his research career as an undergraduate student, collaborating during three years in the research of the Department of Physiology at the University of Murcia. After obtaining his degree in Biology, he worked for his PhD during five years in the same Department. After the PhD, he worked as an assistant lecturer at the University of Murcia, teaching Animal Physiology, Animal Ecophysiology and Chronobiology in the degrees of Biology and Medicine. During his PhD, he performed several stays and collaborations with research groups from Europe and United States, always with the aim of training in new skills and techniques that were then applied at the Chronobiology group of the University of Murcia, and with the aim of making contact with groups specialized in other fields of physiology that could improve and widen his knowledge and points of view.

Afterwards, the researcher worked as a postdoc in two European institutions, the University of Ferrara in Italy (5 months) and the Karlsruhe Institute of Technology in Germany (27 months). The collaboration with these institutions started in the framework of two Integrated Actions between Spain, Italy and Germany. The aim of the collaborations was to characterize the circadian system of a cavefish species (Phreatichthys andruzzii) and compare it with the model species zebrafish. The characterization involved gene expression, cell biology and behavioral rhythms.

After performing the experiments for the publication, the researcher started his own research project in the Karlsruhe Institute of Technology (KIT). This was mainly focused on the role of food in the synchronization of biological rhythms in fish. One of the strong points of the project was to take advantage of the biotechnology tools available in the Institution: 3D imaging microscopy, bioluminescence and fluorescence techniques, cell cultures and other molecular biology techniques, and the existence of one of the biggest fish research facilities of Europe focused on two model species, zebrafish and medaka. The researcher learned and trained in these techniques, acquiring high skills in some of them such as cell culture, bioluminescence, in situ hybridization, cloning and transfection. In addition, the applicant started in Karlsruhe his collaboration with researchers working with medaka, which continues to date in a recent project obtained by the applicant.

Three years ago, he joined again the Chronobiology group of the Department of Physiology of the University of Murcia through a contract from Juan de la Cierva program. During this period, he has started to develop independent research lines through a regional project in which he is the PI and one international project with Brazil.

Resumen del Currículum Vitae:

The applicant has published 40 papers in journals indexed in JCR-ISI. Among these publications, the applicant is the first author in 14 and the last author in 2 of them. 30 papers from the total (75%) are published in journals from the first quartile of their respective areas, according to JCR. 36 papers are original articles and 4 papers are reviews. According to SCOPUS, the researcher has an h-index of 18. His publications have received a total number of 758 cites, with an average of 100 cites/year in the last five years (2012-2016).

The applicant has participated in 12 research projects: 6 national projects, 3 regional projects, 2 integrated actions (with Italy and Germany, respectively) and 1 international project Brazil-Spain. Recently, he got a project as Principal Investigator, in the program Young Leaders in Research from the regional agency of Murcia for Research and Technology. In addition, he has participated in two research contracts with private companies.

During his PhD, the researcher performed several stays in research centers and Universities from United States, United Kingdom and Poland. He performed his main postdoctoral activity in Germany, at the Karlsruhe Institute of Technology (27 months). As a postdoc, he also performed a stay of 5 months at the University of Ferrara, in Italy. After his PhD and before his postdoc stay abroad, he worked during one year and a half as a teacher (Profesor Asociado) at the Department of Physiology of the University of Murcia. In the last three years

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(2014-2016), he has been working at the Department of Physiology of the University of Murcia with a contract from the Juan de la Cierva program.

With regards to teaching, the researcher has co-directed two Doctoral Theses and he is currently co-supervising one PhD student. He has also directed two Master Theses and co-directed five Degree Projects from Biology and Biotechnology. So far, the applicant has taught a total of 428 h, mainly in the subjects taught by the Department of Physiology in the Degree of Biology of the University of Murcia.