Program

INTERNATIONAL WORKSHOP ON GENETIC RESISTANCE TO PARASITES IN SMALL RUMINANTS

September, 22-23, 2012
Gran Canaria
SPAIN
COMMITTEES:

CHAIRPERSONS

Jorge F. González (Chairperson, University of Las Palmas de Gran Canaria, Spain)
David Piedrafita (Deputy Chairperson, Monash University, Australia)

LOCAL ORGANIZING COMMITTEE SECRETARY

Rodríguez Eligia (University of Las Palmas de Gran Canaria, Spain)

LOCAL ORGANIZING COMMITTEE

Argüello Anastasio (University of Las Palmas de Gran Canaria, Spain)
Andrada Marisa (University of Las Palmas de Gran Canaria, Spain)
Batista Miguel (University of Las Palmas de Gran Canaria, Spain)
Castro Noemí (University of Las Palmas de Gran Canaria, Spain)
Capote Juan (University of La Laguna, Spain)
Conde Magnolia (University of Las Palmas de Gran Canaria, Spain)
Fernández Antonio J. (University of Las Palmas de Gran Canaria, Spain)
Jaber, José R. (University of Las Palmas de Gran Canaria, Spain)
Hernández Julia (University of Las Palmas de Gran Canaria, Spain)
Hernández Lorenzo E. (University of Las Palmas de Gran Canaria, Spain)
López Adassa (University of Las Palmas de Gran Canaria, Spain)
Martel Diego (University of Las Palmas de Gran Canaria, Spain)
Millán Sara C. (University of Las Palmas de Gran Canaria, Spain)
Molina José M. (University of Las Palmas de Gran Canaria, Spain)
Morales Antonio J. (University of Las Palmas de Gran Canaria, Spain)
Muñoz Mª Carmen (University of Las Palmas de Gran Canaria, Spain)
Ortega, Leire (University of Las Palmas de Gran Canaria, Spain)
Pérez Davinia (University of Las Palmas de Gran Canaria, Spain)
Quesada, Yéssica (University of Las Palmas de Gran Canaria, Spain)
Rivero, Fernando (University of Las Palmas de Gran Canaria, Spain)
Rodríguez Alejandro B. (Small Ruminant Clinician, Spain)
Ramírez Ana S. (University of Las Palmas de Gran Canaria, Spain)
Rivero Miguel (University of Las Palmas de Gran Canaria, Spain)
Rodríguez Francisco (University of Las Palmas de Gran Canaria, Spain)
Ruiz Antonio (University of Las Palmas de Gran Canaria, Spain)

INTERNATIONAL ADVISORY COMMITTEE

Diaz-Baños, Pablo (University of Santiago de Compostela, Spain)
González Jorge F. (University of Las Palmas de Gran Canaria, Spain)
Hernández Santiago (University of Córdoba, Spain)
Hoste Hervé (INRA, France)
Mandonnet Nathalie (INRA, French West Indian)
Meeusen Els (Monash University, Australia)
Miller James (Louisiana State University, US)
Molina José M. (University of Las Palmas de Gran Canaria, Spain)
Piedrafita David (Monash University, Australia)
Raadsma Herman (Sydney University, Australia)
Reina David (University of Extremadura, Spain)
Rojo-Vázquez, F. (University of Leon, Spain)
Stear Michael (University of Glasgow, Scotland)
Torres-Acosta Felipe (University Autonomous of Yucatán, México)
Uriarte Joaquin (Agrifood Research and Technology Centre of Aragon, Spain)
INVITATION TO DELEGATES

Dear Colleagues,

On behalf of the Organizing Committees, it is a great pleasure to invite you all to attend the International Workshop on Genetic Resistance to Parasites in Small Ruminants (www.congresos.ulpgc.es/gerepa) in Gran Canaria (The Canary Islands, Spain), from 22nd to 23rd of September 2012.

Many collaborators and researchers who attended the 23rd Conference of the World Association in Advances in Veterinary Parasitology (WAAVP) in Buenos Aires (Argentina) discussed with great interest, the recent progress being made towards animal health and genetics for parasite disease resistance. This has involved the recognition that local indigenous production breeds are an invaluable, unique and underutilised resource for sustainable livestock production.

These animals have the potential to lead the discovery of genes and mechanisms of resistance to parasite infections, and to uncover new pharmacological targets for novel chemical prophylaxis and vaccines. Such indigenous breeds will contribute to reduced hunger and poverty and to ensure environmental sustainability (Millennium Development Goal 1 and 7 respectively).

In September 2012, Las Palmas de Gran Canaria University has been selected to hold the Conference of the International Goat Association (www.icg2012.org/). We considered this is a timely meeting to also develop this two-day workshop concurrent with the IGA congress. We have confirmed multiple international researchers (including from Australia, the UK, United States, French West Indies and Spain) who are leaders in this field of research as speakers for this workshop.

We look forward to welcoming you to Gran Canaria (Spain) and invite you to enjoy an open and stimulating discussion about science in a relaxed picturesque environment.

Dr. Jorge F. González
Senior Research Fellow
University of Las Palmas de Gran Canaria

Dr. David Piedrafita
Associate Professor
Monash University
SPECIFIC AIMS OF THE WORKSHOP

The main aims of this workshop will be:

1. Create an international advisory and research group with interest in genetic resistance to parasites in small ruminants
2. An up-date in phenotypic and genetic breed resistance progress. This information should be incorporated into DAD-IS systems
3. Open discussions with researchers, extension agents, local professional from both developed an developing countries about the use of these breeds and recommendations about drug applications in the field
4. A discussion around the biotechnology industry. What the pharmacological industry could learn from these breeds and how these data could help to solve some parasitological problems in the World.

LOCATION AND DATES

The International Workshop on Genetics Resistance to Parasite Infections in Small Ruminants will take places in Arucas, Gran Canaria (The Canary Islands, Spain) (http://www.grancanaria.com/patronato_turismo/283.0.html). Gran Canaria is a lovely volcanic island located in the Atlantic Ocean about 150 km from northwest cost of Africa; geographically, in the centre of the Canary Islands Archipelago. It is a very popular tourist destination in Europe, with more than 2 million tourists per year. Although it is a tiny island, with only 1,560 km², the island is called, “miniature continent” due to the different climates and varieties of landscapes found, with long beaches and dunes of white sand, contrasting with green sceneries, pine forest and beautiful villages.

The Workshop will take places at the School of Veterinary Sciences of the University of Las Palmas de Gran Canaria. Delegates will have free access to internet (wifi) in this facility. Dates will be 22nd-23rd of September, 2012.
LANGUAGE

The official language of the Workshop will be English.

CLIMATE

The weather in Las Palmas de Gran Canaria in September is usually sunny with historical temperatures ranging from 21.2 to 27.1 ºC.

TIME ZONE

The time zone in Las Palmas de Gran Canaria is GMT.
WORKSHOP PROGRAM

9:00-9:30 Registration

9:30-10:30 Opening ceremony
Welcome speeches:
Jorge Orós (Dean of the Veterinary Faculty, University of Las Palmas de Gran Canaria)
Jorge F. González or David Piedrafita (Chairpersons)
Antonio Osuna (President of the Spanish Society of Parasitology)
Juan Pedro Dávila de León (Director General de Ganadería, Canary Government)
Marina Villegas Gracia (Subdirectora General de Proyectos de Investigación, Department of Economy and Competitive, Spanish National Government)
Irene Hoffman (Chief, Animal Genetic Resources Branch, FAO)
Antonio J. Fernández (Head of the Institute of Animal Health and Food Security of the University of Las Palmas de Gran Canaria)

10:30-11:00 Coffee & Tea break

11:00-13:00 Session 1: Breeding for resistance against parasites in small ruminants I
Speakers
11:00-11:30 Gulf Coast Native, a local breed of sheep with enhanced resistance against gastrointestinal nematodes. An update
James Miller
11:30-12:00 Canaria Hair Breed Sheep: Identification of a new mechanism of resistance against gastrointestinal nematodes. An update
Jorge F. González
12:00-12:30 Increased production through parasite control: can ancient breed of sheep teach us new lessons?
David Piedrafita
12:30-13:00 The resistance of the Spanish Churra sheep breed to the infection by gastrointestinal nematodes
Francisco A. Rojo

13:00-14:00 Lunch

14:00-15:30 Session 2: Genetics resistance against parasites in small ruminants. Biotechnology
14:00-14:30 Creole goats a local breed of goat with enhanced resistance against gastrointestinal nematodes
Nathalie Mandonnet
14:30-15:00 Genomics approach for characterizing parasite resistance
Herman W. Raadsma
15:00-15:30 Immunogenetic analysis of resistance of nematode infections
Michael Stear
15:30-16:00 Immunological mechanisms of resistance against gastrointestinal nematode parasites in sheep. 
Els Meeusen

16:00-16:30 Coffee break

16:30-17:00 Session 3. General poster sessions: alternative methods for the control of parasite infections in small ruminants

17:00-17:30 Round table: Parasite resistance in sheep and goats. Local and biotechnology approach. (Open discussions with all delegates) 
Chairman: Rojo and González
Speakers: Miller, Piedrafita, Mandonnet, Raadsma, Stear and Meeusen

17:30-18:00 Conclusions of the Workshop

23rd of September

9:00-11:00 Cultural visit to Arucas. Local authorities’ reception.
10:30-11:00 Coffee & Tea break
11:00-13:30 Technical visit. Herds of Canaria Hair Breed sheep and Canaria sheep
13:30-14:45 Lunch
14:45-15:00 Closing ceremony
**KEY SPEAKER PROFILES**

**Dr Jorge Francisco González**  
Senior Research Fellow  
Project Leader: Genetic resistance to nematodes in small ruminants  
Parasitology Unit. Department of Animal Pathology  
Veterinary Faculty,  
University of Las Palmas de Gran Canaria, Arucas 35413  
Canary Island, Las Palmas (Spain)  
Phone: +34 928 457242  
Email: jfgonzalez@dpat.ulpgc.es

**BRIEF BIOGRAPHY**
Dr. Jorge F. González obtained his first degree in Veterinary Sciences in 1996 at the University of Las Palmas de Gran Canaria (ULPGC). He was awarded a competitive National Fellowship at the Department of Animal Pathology at the ULPGC in 1997. However, by September, 1997, he was appointment Associate Professor at the Parasitology Unit of the Veterinary Faculty of ULPGC and embarked on a PhD about immune response against gastrointestinal nematodes in goats within this research group. He was appointment Senior Research and Lecturer Fellow in 2011. He has visited several national and international research laboratories and he has established collaborative work with many of them. He is the principal investigator for several competitive and industry supported grants. His current main research aim is identified why the Canaria Hair Breed sheep is more resistant to gastrointestinal nematode infections than local Canaria sheep.

**SELECTED PUBLICATIONS**
- Jorge F. González, Álvaro Hernández, Els N.T. Meeusen, Francisco Rodríguez, José M. Molina, José R. Jaber, Herman Raadsma and Piedrafita, D. (2011). Fecundity in adult *Haemonchus contortus* parasites is correlated with abomasal tissue eosinophils and gamma-delta T cells in resistant Canaria Hair Breed sheep. Veterinary Parasitology 178: 286-292.
Dr. Nathalie Mandonnet
Deputy Director: Animal Research Unit
Institut National de la Recherche Agronomique
Unité de Recherches Zootechniques
Domaine Duclos, 97170 Petit-Bourg
French West Indies (France)
Phone: +33 590 255408
Email: Nathalie.Mandonnet@antilles.inra.fr

BRIEF BIOGRAPHY
In 1991, Dr. Nathalie Mandonnet was appointed Research Assistant at INRA in Tours where she developed her PhD studies. She returned to French West Indies in 1995 to work in the selection of goat adapted to tropical humid ecosystem within the research group of “Physiology and Genetics adaptation to Stress” belonging to Zoo technical Research Unit. Her first studies showed genetic variability of productive trait and the adaptability of local animals, in particular its resistance or susceptibility to gastrointestinal nematodes. Since 2000, she has focused her research on identify mechanisms and genes implicated on this greater breed resistance.

SELECTED PUBLICATIONS
Professor Els Meeusen
Director: Biotechnology Research Laboratories
School of Biomedical Sciences,
Monash University, Clayton, 3800, Australia
Phone: +61 9905 2513
Email: els.meeusen@monash.edu

BRIEF BIOGRAPHY
Professor Els Meeusen obtained her first degree in Biology at the University of Ghent, Belgium. She worked for two years as an Associate Expert for the UN's Food and Agriculture Organisation in Uruguay, before embarking on a PhD at the University of Cambridge, UK. In 1983, she emigrated to Australia and was an active researcher at the University of Melbourne for the next 22 years, the last 5 years as Director of the Centre for Animal Biotechnology. In January 2006, she was appointed Professor in the Department of Physiology at Monash University, where she continues her efforts to integrate a whole body approach to science into practical applications for the biotechnology and animal and human health industries. Her main areas of interest include: the immunobiology of parasite infections, vaccine development, allergies, and translation of research findings.

SELECTED PUBLICATIONS
Dr. James E. Miller has been a member of the faculty since 1984; he was appointed full Professor in 1995 and was Acting Head of the former Department of Epidemiology and Community Health (1999-2001). He is author and/or coauthor of over 90 refereed journal articles, numerous technical/report papers, proceedings papers, and abstracts, and 7 book chapters. He is a research collaborator with numerous national and international organizations. He is a founder of the Southern Consortium for Small Ruminant Parasite Control. The Consortium’s primary purpose is to evaluate and promote alternative non-chemical methods for controlling nematode parasites.

Dr. Miller is the principal investigator for several competitive and industry supported grants dealing with the epidemiology, control, and genetics of ruminant nematode parasitism. His research program focuses on improving ruminant production using an integrated approach to controlling parasites. His area of special expertise is small ruminant gastrointestinal nematode parasitism, which is the most serious constraint affecting production worldwide. Economic losses are caused by decreased production, costs of prophylaxis, costs of treatment, and the death of infected animals. Anthelmintic resistance in nematode populations (specifically affecting small ruminants) threatens the success of treatment programs. Dr. Miller’s research is directed at developing alternative strategies for control. His current research program is two-fold: 1) To determine why, and/or how, Gulf Coast Native sheep are relatively more resistant to gastrointestinal nematode infection than Suffolk sheep, and 2) To evaluate alternative (non-chemical) approaches for protection against nematode infection.

SELECTED PUBLICATIONS


Dr David Piedrafita embarked on a PhD in immunoparasitology within the Department of Primary Industries in Victoria, after winning a competitive National Industry Scholarship. In 1996, he was awarded a Wellcome Trust Fellowship and worked on DNA vaccines at Glasgow University in Scotland for 3 years. David returned to Australia in 1999 to study Helminth vaccines and biology and in 2001 set up his own group working on Fasciola (liver fluke). In 2006, he relocated his group to the Biotechnology Research Laboratories at Monash University, where he continues to work on national and international research programs (including Thailand, Indonesia, Africa and Spain) and heads the Parasitology unit. He routinely hosts scientists and graduate students from overseas countries and supervises several PhD students. He is actively involved in promoting parasitology to the general public through educational activities and has been vice president and president of the Australian Society for Parasitology (2005-2007). He was deputy chair for the 2010 International Congress for Parasitology which was held in Melbourne (ICOPA XII) and hosted over 1,750 delegates from around the world. Parasite immunology, Vaccine development and performance and the genetic control of disease resistance are his main research interests.

SELECTED PUBLICATIONS

BRIEF BIOGRAPHY

Herman joined the University of Sydney, faculty of Veterinary Science as a Research Fellow in 1988. Previous employment included 7 years as a Research Officer with NSW Department of Agriculture, Agriculture Research Station Trangie, with responsibilities for sheep breeding research in disease resistance. Postgraduate qualifications obtained from University of New England, Department of Animal Science in applied male reproduction efficiency, and sex-preselection. PhD obtained from the University of Sydney, Department of Animal Health. He was Associate Dean for Research, Faculty of Veterinary Science (1999) and Director of ReproGen from 1999 to date.

Primary research responsibilities at the University of Sydney have covered research on genetic aspects of disease resistance in sheep, with a focus on footrot and vaccine responsiveness. More recent research interests cover molecular characterisation of livestock genomes for production and disease resistance genes, with a focus on sheep. Research track record includes acquisition of competitive grant (external) funding (in excess of $6 mil) for core research programs and capital facilities; national and international collaboration with livestock genetics groups; strong record of publication.

Strong commitment to animal health and production research, with a special interest in the development and application of genetic principles for control of disease and immune function, and application of DNA technologies in animal breeding programs for superior production. These programs have a focus to enhance sustainable and easy care features of livestock in extensive grazing systems. Contributor to animal health / animal production sciences.

SELECTED PUBLICATIONS

**Professor Francisco A. Rojo-Vázquez**

Academic: Real Academia Española de las Ciencias Veterinarias (Royal Spanish Academy of Veterinary Sciences)

Head: Anthelmintic resistance and strategic control of helminth in ruminants group

Department of Animal Health  
Faculty of Veterinary  
University of León  
Campus de Vegazana, 24071, León, Spain  
Phone: +34 987 291338  
Email: francisco.rojo@unileon.es

**BRIEF BIOGRAPHY**

Professor Rojo-Vázquez obtained the Degree in Veterinary Medicine at the Faculty of Veterinary Medicine of the University of León (Spain) and the PhD in Veterinary Parasitology, Faculty of Veterinary Medicine of León, University of León. He was appointment initially as Assistant Professor of Parasitology and Parasitic Diseases, Faculty of Veterinary Medicine, University of León and later on initially as Associate Professor and Full Professor of Parasitology at Faculty of Pharmacy of the University of Salamanca (Spain) where he was also the Dean of the Faculty.  
Few years later, he moved to the Faculty of Veterinary Medicine of the Universidad Complutense (Madrid) as Professor of Parasitology and Parasitic diseases at the Animal Health Department and finally to the same Department at the Faculty of Veterinary Medicine in the University of León, being also Dean of these institutions. In 2007, he was the Head of the Centro de Investigación en Sanidad Animal (CISA-Centre for Investigation in Animal Health, Spanish Ministry of Science and Innovation) and Subdirector for Research of the National Institute of Agricultural Research (Spanish Ministry of Science and Innovation). Recently he came back to the Veterinary Faculty of the León University. He has also been the President of the Spanish Society of Parasitology and Founding Diplomate of the European Veterinary Parasitology College (EVPC). He is member of the Spanish Academy of Veterinary Science. He is a research collaborator with numerous national and international research centres. He has been principal investigator of several industry and competitive grants. His main research interest is on resistance to anthelmintics, breed resistance against parasites and integrate control of gastrointestinal nematodes and liver fluke infections.

**SELECTED PUBLICATIONS**

**Professor Michael Stear**

**Professor of Immunogenetics**

**Associate Academic (School of Veterinary Medicine)**

**Head: Veterinary Genes and Protein Group**

Institute of Infections, Immunity and Inflammation, School of Veterinary Medicine, University of Glasgow, Garscube Campus, Bearsden Road, Glasgow G61 1QH

Phone: +44 (0) 141 330 5762

Email: Michael.Stear@glasgow.ac.uk

---

**BRIEF BIOGRAPHY**

His major interest is in understanding and controlling nematode infections. Most of his research is on *Teladorsagia circumcincta* infections of sheep. This host-parasite association was chosen deliberately because it is an economically-important infection of sheep. Most advances in our understanding of host-parasite relationships have come from a detailed analysis of deliberate infections or mathematical modelling of natural infections. Both strategies can be used to study parasites of sheep. The plan is to develop a coherent explanation that covers all levels from populations to molecules. Among the achievements are the use of variance analysis to identify and quantify the major components of resistance, the demonstration that many components including the heritability and sex differences vary with age, the finding that a major mechanism of resistance in growing lambs is the mucosal IgA response against fourth-stage larvae which is associated with reduced worm growth and fecundity and the identification of two quantitative trait loci (QTL) for parasite resistance; one in the mhc class II region and one in or around the interferon gamma gene. His current research aims to identify the parasite molecules recognised by resistant but not susceptible hosts. He is the principal investigator of many competitive and private supported grants.

---

**SELECTED PUBLICATIONS**

ACKNOWLEDGMENTS

The Committees of the International Workshop on Genetic Resistance to Parasites in Small Ruminants gratefully acknowledge the support of the following institutions and companies and wish to thank them for their contribution:

Institutions

- University of Las Palmas de Gran Canaria
  www.ulpgc.es

- Instituto Universitario de Sanidad Animal
  www.iusa.eu/

- Faculty of Veterinary
  www.fv.ulpgc.es

- Instituto Nacional de Investigaciones y Tecnología Agraria y Alimentaria (Department of Economy and Competitive, Spanish Government)
  www.inia.es

- European Regional Development Fund (ERDF)

- Excmo. Ayuntamiento de Arucas
  http://www.arucas.org/

- Colegio Oficial de Veterinarios de Las Palmas
  http://lpa.vetcan.org/
Partners

- Merial
  www.merial.com

- Pfizer
  www.pfizer.es

- JSP
  www.jsp.es

- Agua de Firgas
  www.aguadefirgas.com
SPONSORSHIP OPPORTUNITIES

The Committees of the International Workshop on Genetic Resistance to Parasites in Small Ruminants is seeking the support of organisations or companies to provide sponsorship. If you are interested, please, send an email to:

jfgonzalez@dpat.ulpgc.es