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AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2014

Turno de acceso general

Nombre: **RIVERA SANCHEZ, MARGARITA**
Referencia: RYC-2014-15774
Área Científica: Medicina Clínica y Epidemiología
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Título:

Genetic and environmental determinants of comorbidity between psychiatric disorders and medical conditions

Resumen de la Memoria:

My research career has been mainly devoted to the study of the genetics of psychiatric disorders, and most recently to their comorbidity with medical contitions. My doctoral studies focused on candidate genes and gene-environment interactions in depression. Depression is the most common psychiatric disorder and causes the greatest disability in the world population. Besides, threatening life events (TLEs) such as experiences of maltreatment during childhood are associated with mental health disorders, possibly as a consequence of the moderating effect of specific genes on the risk conferred by such early traumatic events. Consistent with previous reports we found that two common variants in the serotonin transporter (SERT) and the monoamine oxidase A (MAOA) genes conferred a modestly higher risk for depression in a large cohort of Spanish primary care attendees (PREDICT-Gene study). We also tested in this cohort the potential gene-by-environment interaction between the 5-HTTLPR genotype at SERT gene and previous exposure to TLEs in depression. Both the high-risk genotype and exposure to increasing number of TLEs were significantly associated with depression. This was the first study that replicated in a Spanish cohort the original findings published by Caspi et al. in 2003 in the journal Science. During my postdoctoral stage at King¿s College London, I led and developed a new research line focused on the genetic relationship and overlap between mood disorders and obesity-related diseases. Depression and obesity are leading causes of disease burden and disability, as well as major public health concerns worldwide. Both conditions are highly prevalent and major risk factors for chronic physical diseases such as type II diabetes, cardiovascular disease and hypertension. Some recent studies support the hypothesis that there are shared aetiological factors, including genetic factors, between depression, obesity and other physical disorders. The aim of this innovative research line is to get a better understanding of the molecular genetic basis and environmental factors that play a role in the underlying aetiology between psychiatric disorders and medical conditions, especifically obesity-related disorders, for which I will use candidate genes, genome wide association (GWAS) and next generation sequencing (NGS) data. The identification of common causes for comorbid medical and mental disorders can provide better clinical awareness and ascertainment of such comorbid states and, thus, contribute to better care for most severely disabled patients. Research on this field is very promising and will ultimately lead to better identification of patients at risk of obesity-related disordes and potentially improve prevention, management and treatment programmes.

Resumen del Currículum Vitae:

During the last year of my degree (2002-2003) I joined the Department of Legal Medicine, Toxicology and Psychiatry with a Collaboration fellowship from the Spanish Ministry of Education and Science (MEC). I graduated in Biology at the University of Granada (UGR) in 2003. Shortly after, I undertook a PhD supported by a pre-doctoral FPU fellowship (MEC, 2004-2008) and by a research contract from the Centre for Biomedical Research on Mental Health (CIBERSAM) (Instituto de Salud Carlos III), under the supervision of Professors Blanca Gutiérrez, Jorge Cervilla and José Antonio Lorente. My PhD focused on the study of candidate genes and gene-environment interactions in depression. This work produced three papers, two published in first quartile journals (Cervilla-Rivera et al., AJMG 2006; Rivera et al., AJMG 2008) and one in the top journal of the area Psychiatry (Cervilla-Molina-Rivera et al., Molecular Psychiatry, 2007). I obtained my PhD degree in Biology in June 2008 with the highest qualification (Summa Cum Laude, Doctor Europeus), receiving the PhD Prize for the best Thesis in Health Sciences of the University of Granada. In 2009, I won a competitive Marie Curie Intra-European Fellowship (IEF) from the European Union to join Prof. McGuffin¿s group at King¿s College London (KCL) for two years. I commenced and led a new research line investigating the relationship between psychiatric disorders and obesity-related diseases. Results from this projects were published in Molecular Psychiatry, top journal of the field (IF:15.15) (Rivera et al.. 2012). Later, I was hired in the group of Prof. McGuffin to continue working on the research line I commenced at the SGDP, exploring the genetic relationship and overlap between mood disorders and obesity-related diseases. In July 2012, I was awarded a highly competitive Postdoctoral Fellowship from the NIHR Biomedical Research Centre. I took a coordinating role in next generation sequencing, genotyping and expression microarray processing. I was also responsable for depression and bipolar disorder areas within the BRC Bioresource and Genomics and Biomarkers Theme. In September 2013, I got a promotion to academic Lecturer and continued working on the field of psychiatric disorders and their comorbid medical conditions. After five and a half years at King¿s College London, I came back to Spain last September with a new Marie Curie Intra-European Fellowship joining CIBERSAM UGR group led by Professor Jorge Cervilla. I have wide experience leading international projects and establishing collaborations at national and international level. I have recently been awarded a project as a Principal Investigator funded by The Brain & Behavior Research Foundation (NARSAD). My scientific production includes 21 articles, 20 published in journals indexed in the JCR-ISI, of which 16 are included in the first tertile of their area of expertise, 10 of them in the first decile, and even 4 are published in the top journal in the area of Psychiatry. My index H is 8 (JCR) and my articles have received over 300 citations. Of these publications, in 13 I am one of the first three authors, indicating my high level of participation. The impact factor of my publications is 147.26, and the average is 7.01. I am

also the author of 1 conference book and 3 book chapters. My research results have been presented in over 60 communications in national and international conferences, being an invited speaker on several occasions.

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Nombre: **JIMENEZ PAVON, DAVID**
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Título:

The epidemiology of promoting health and preventing cardiometabolic diseases through physical activity and exercise prescription

Resumen de la Memoria:

The epidemiology of promoting health and preventing cardiometabolic diseases through physical activity and exercise prescription:

The candidate got his bachelor in 2005, thenceforth, the candidate got the highly competitive grant FPU and defended his Master in Human Nutrition with European Mention and his thesis based in the context of a European funded Project (FP6) (scope: the relation of insulin resistance, leptin levels and others with fitness and physical activity levels in European adolescents). He also did several stays abroad in highly reputed centres.

Then, the candidate got the "Juan de la Cierva" fellowship and expanded his research from adolescents to in longitudinal and intervention studies which allow to better knowing the epidemiologic and environmental effect. He was active researcher in 6 European projects (FP6 and FP7) in which played coordination¿s roles, but also has been PI in 1 regional project. The results derived from the postdoctoral research pointed out to a new dimension regarding how the health status of children and adolescents can be affected later in life depending of several behaviors (ie. physical activity, fitness or nutrition) from an epidemiologic point of view. Moreover, the candidate took part of the well-known American project of the Cooper Institute-Clinic opening a new epidemiology dimension related with the role of fitness on health, particularly the longitudinal influence of cardiorespiratory fitness on sudden cardiac death and the role of hypertension, obesity and health status. Recently, he has got involved in a new EU projects (Erasmus+) to be develop in 2015.

He got the first reserve position in the Ramón y Cajal contracts 2013, consequently, the 2014 call together with the framework provided by my international networks and my research experience (57 publications in ISI, direction of theses and MSc, advisor/reviewer), would provide the critical stepping stone to enable me to launch my career as an independent investigator being the leader of a promising research line.

Resumen del Currículum Vitae:

The candidate got his bachelor degree in Sport Sciences and Physical Activity in 2005 at the University of Granada getting the extraordinary final bachelor award of the Spanish Ministry of Education, Culture and Sport (MEC). He started to belong and collaborate with the "EFFECTS-262" research group (school of Medicine, University of Granada) during his bachelor degree. This was a unique opportunity to increase his knowledge on the relationship between health status (cardiovascular diseases risk factors, diabetes and obesity) and physical activity and fitness at epidemiological level. Thenceforth, the candidate has been getting the different steps that the Ministry of Science and Innovation considers appropriate to become an independent researcher being the main research line based in the epidemiology of promoting health and preventing cardiometabolic diseases through physical activity and exercise. First, the candidate got the highly competitive national grant (grant FPU, MEC) at Polytechnic University of Madrid and during this four-year period he defended the Master in Human Nutrition with European Mention and also defended his thesis in the Department of Physiology (Faculty of Medicine, Granada). His thesis was based in the context of a European funded Project (FP6). In this time, the candidate also did several stays Glasgow University, Karolinska Institutet; short visits to the MRC Epidemiology Unit at University of Cambridge and the University College London.
All the experiences, knowledge, and international networks gained during the pre-doctoral period placed the candidate in a good position for starting a postdoctoral research period as a "Juan de la Cierva" (Professor L.A. Moreno, GENUD research group). During this postdoctoral period the candidate expanded his research line from adolescents to child and from a cross-sectional design to a longitudinal and intervention focus which allows to better know the epidemiologic and environmental effect on health parameters of several behaviors such as nutrition, physical activity and fitness. This was carry out through being an active researcher in six EU funded projects (FP6 and FP7) in which played a coordination¿s role from the research group of Zaragoza in collaboration with the principal investigator (PI), to collaborate in another international project from United States and also being PI in a regional project. In this phase, the candidate was also acting as co-director of several PhD theses and master degree as well as advising other younger researchers in the acquisition of techniques and methodologies related with his own research line. The results derived from the postdoctoral research have pointed out to a new dimension in how the health status of children and adolescents can be affected later in life depending of several behaviors (ie. physical activity, fitness or nutrition). This line of research highlights a new insight for promoting health and preventing cardiometabolic/cardiovascular diseases and obesity at epidemiologic level through modifying behaviors which are closely related.

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In summary, the pre-postdoctoral time allowed the candidate to get new responsibilities, to accumulate experience and to develop important skills as independent researcher. All that was recognized in the last Ramón y Cajal contract issue (2013) were the candidate got the first reserve position.

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Nombre: **GARCIA ARTERO, ENRIQUE**
Referencia: RYC-2014-16390
Área Científica: Medicina Clínica y Epidemiología
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Título:

Physical Activity and Fitness for Health: from Youth to Adulthood

Resumen de la Memoria:

During my PhD, my research was focused on physical activity and fitness in childhood and adolescence, participating in different cross-sectional Spanish and European projects, some of them funded by the EU-Framework Programme. We established reference values for body composition, physical activity and fitness levels. We defined a valid, reliable and feasible test battery to assess health-related fitness at the school setting. We investigated the association of physical activity and fitness with cardiometabolic risk factors and other less explored outcomes, such as socioeconomic status or academic achievement. And more recently, I have been involved in experimental studies to explore the effectiveness of school-based interventions to prevent obesity, improve physical fitness and enhance cognitive performance.

As a post-doc, I investigated prospective associations between fitness and different health outcomes in adult population, including mortality and incidence of CVD and cancer. This worked was performed under the umbrella of the Aerobics Center Longitudinal Study (ACLS), directed by Professor Steven N. Blair, University of South Carolina. Working with Dr. Blair, I gained experience in the organization, design and management of both controlled clinical trials and epidemiological studies, funded in most cases by the National Institutes of Health (NIH).

I have shown independent thinking, project management skills and leaderships qualities all along my research career. I have co-worked and am currently active in collaborations with several groups from Spain, Sweden, UK, Chile, and USA. I have accredited teaching experience in different universities and research centres. My long-term career goal is to become an independent researcher in the field of physical activity / fitness and epidemiology. More specifically, I want to explore the effectiveness of high-intensity exercise-based interventions in the primary prevention of cardiovascular risk in obese children, using high-resolution ultrasound imaging to determine arterial stiffness, endothelial function and non-alcoholic steatosis (fatty liver).

Resumen del Currículum Vitae:

From 2005 till now, I have been awarded with 7 research grants / scholarships, including some of the most prestigious in the country funded by the Ministries of Education and Science and Innovation (beca FPU, AP2005-4358; Ayudas de movilidad postdoctoral en el extranjero, EX-2010-1008). I have been involved in a total of 8 international competitive projects, funded among others by Fondo de Investigaciones Sanitarias (FIS), Spanish Ministry of Health (estudio AVENA, ref 00/0015-3); European Commission, Framework Programme 6 (HELENA project, ref FOOD-CT-2005-007034); Spanish Ministry of Education and Science (red EXERNET, ref DEP2006-00046); European Commission, Public Health Executive Agency (ALPHA project, ref 2006120); the Chilean Government (FONDECYT 1100206); the US National Institutes of Health (ACLS study, grants AG06945, HL62508, R21DK088195); and the Spanish Ministry of Economy and Competitiveness (ACTIVE BRAINS ref DEP2013-47540R and DADOS ref DEP2013-45515R).

I have worked with different research groups in Spain, Belgium, Sweden, U.S. and Chile, where I have been mentored by top-level exercise physiologists, clinicians and epidemiologists. After getting a BSc in Physical Activity and Sport Sciences (2005) and a MSc in Human Nutrition (2007), I became a PhD with Prof. Manuel Castillo in the school of medicine at the University of Granada (2010). Afterwards, I completed a 2.5-year post-doctoral residency in the Department of Exercise Science, Arnold School of Public Health at the University of South Carolina, USA (September 2010 – February 2013). There I had the privilege of being mentored by Prof. Steven N. Blair, one of the most recognized world authorities in the field of physical activity and health. This experience allowed me to gain invaluable research training with American institutions as important as the American College of Sports Medicine (ACSM), the American Heart Association (AHA) or the Centers for Diseases Control and Prevention (CDC). I have presented scientific results at the best international conferences in the discipline (totalling more than 80), have accredited teaching experience in different universities, and currently act as scientific advisor in several research projects. Also, I have co-directed 2 PhD theses and one Master Thesis, and I am very close to lead my own research group at my hosting institution, the University of Almería.

At this early stage of my scientific career, I have published 54 articles in international peer-reviewed journals with impact factor (JCR Science Edition, ISI Web of Knowledge). My total number of citations is 1008 (920 without self-citations), with an average of 18.67 citations per article. My H-index is 17 (i.e., 17 articles cited at least 17 times). Among those 54 JCR articles, 35 of them (65%) has been published in the Q1 (top 25%) of categories such as Cardiac & Cardiovascular Systems; Medicine, General & Internal; Pediatrics; Sport Sciences; Public,

Environmental & Occupational Health; or Nutrition & Dietetics, among others. Three of my publications have an impact factor higher than 14 (Circulation and JACC).

From the total number of publications including articles, books and chapters (70), I am first, second or last author in 40 of them (57%). Other important achievements include 5 book chapters and 4 research awards.

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Turno de acceso general

Nombre: **PORRINI , ESTEBAN**
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Título:

Diabetic Nephropathy, Post-transplant diabetes.

Resumen de la Memoria:

I am a nephrologist and developed my pre-doctoral stage in the University of La Laguna, studying insulin resistance, metabolic syndrome, prediabetes and diabetes after transplantation. I focused on the impact of insulin resistance in renal function decline in renal transplant patients. Also, in clinical and animal studies, I evaluated the natural history and pathogenesis of diabetes after transplantation. After the presentation of my doctoral thesis (July 2008) I applied successfully for a post-doctoral position (30 months) at the Mario Negri Institute in Italy (Bergamo- Ranica). For this position, I was granted with a long-term fellowship of the European Renal Association-European Dialysis and Transplant Association (ERA-EDTA). In the Mario Negri Institute I studied under the direction of Piero Ruggenenti and Giuseppe Remuzzi. The area of study was the early periods of diabetic renal disease. I focused in the evolution of measured glomerular filtration rate in subjects with normal or glomerular hyperfiltration as well as in the impact of low albuminuria levels (in the range of normoalbuminuria) in cardiovascular disease. My studies in this field included relevant findings such as: establishing a new pathway of renal disease in diabetes in the absence of proteinuria and showing that any level of albuminuria is associated with fatal and non-fatal cardiovascular events. Also I learnt the iohexol plasma clearance technique, a gold standard for measuring renal function. After finishing my stage in Bergamo I came back to Tenerife, where I am hired as researcher in the IMBRAIN project, funded by an FP7 EU grant in the University of La Laguna. Here I created my own research group consisting in a clinical biochemist, a research nurse and a software developer. We developed and validated the iohexol. We are currently the only group is Spain that uses this gold standard procedure. We are developing several studies using this technique and obtained several competitive grants in clinical projects. Finally, I created an international working group named DIABESITY, nested in the ERA-EDTA to develop studies in the field of diabetes and obesity-related renal disease.

Resumen del Currículum Vitae:

I am a nephrologist. Obtained my PHD in the University of La Laguna (2008) studying the importance of insulin resistance in renal transplantation. I evaluated the impact of metabolic syndrome and insulin resistance before and after trasplantation in renal disease and in post-transplant ddiabetes.

Major achievements of my researceh can be observed in the following publications:

1.- Esteban Porrini; Jose Manuel Moreno; Antonio Osuna; et al. Prediabetes in patients receiving tacrolimus in the first year after kidney transplantation: A prospective and multicenter study. TRANSPLANTATION. 85 - 8, pp. 1133 - 1138, 2008.

2.- -Porrini Esteban, Delgado P, Bigo C, et al. Impact of metabolic síndrome on graft function and survival after cadaveric renal transplantation. Am J Kidney Dis. 2006; 48:134-142.

3.- Porrini Esteban, Bayes B, Diaz JM, et al. Hyperinsulinemia and hyperfiltration in renal transplantation. Transplantation. 2009 Jan 27;87:274-9.

4.-Sharif A, Hecking M, de Vries AP, Porrini E, et al. Proceedings from an international consensus meeting on posttransplantation diabetes mellitus: recommendations and future directions. Am J Transplant. 2014;14: 1992-2000.

4.- A. E. Rodriguez-Rodriguez; J. Trinanes; S. Velazquez-Garcia; E. Porrini; et al. The Higher Diabetogenic Risk of Tacrolimus Depends on Pre-Existing Insulin Resistance. A Study in Obese and Lean Zucker Rats. AMERICAN JOURNAL OF TRANSPLANTATION. 13 - 7, pp. 1665 - 1675.

I also held a post-doctoral position in the Mario Negri Institute, under the direction of Piero Ruggenenti and Giuseppe Remuzzi (30 months). I was granted with a long-term fellowship of the ERA-EDTA to develop this stage in my career.

Major achievements of this stage include:

1.- Flavio Gaspari; Piero Ruggenenti; Esteban Porrini; et al ; GFR Study Investigators. The GFR and GFR decline cannot be accurately estimated in type 2 diabetics. KIDNEY INTERNATIONAL. 84 - 1, pp. 164 - 173.

2.- Piero Ruggenenti; Esteban L. Porrini; Flavio Gaspari; et al. GFR Study Investigators. Glomerular Hyperfiltration and Renal Disease Progression in Type 2 Diabetes. DIABETES CARE. 35 - 10, pp. 2061 - 2068. AMER DIABETES ASSOC,10/2012.

3.-Piero Ruggenenti; Esteban Porrini; Nicola Motterlini; et al. ; BENEDICT Study Investigators. Measurable Urinary Albumin Predicts Cardiovascular Risk among Normoalbuminuric Patients with Type 2 Diabetes. JOURNAL OF THE AMERICAN SOCIETY OF NEPHROLOGY. 23 - 10, pp. 1717 - 1724.

Finally, I am the secretary of the DIABESITY working group of the ERA-EDTA. This group is aimed to generate and dissemiante knowledge on diabetes and obesity related renal disease. We have international experts in the board including Piero Ruggenenti and C.E. Mogensen. We organize CMEs and develop our own studies. The group has more than 20 members arround the world.