



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: PAAIJMANS, KRIJN
Referencia: RYC-2016-20741
Área Científica: Medicina Clínica y Epidemiología
Correo Electrónico: krijnpaijmans@gmail.com

Título:

Reducing disease burden through entomological intelligence and new vector control tools

Resumen de la Memoria:

After obtaining my doctorate in 2008 I was awarded a competitive Rubicon Fellowship from The Netherlands Organisation for Scientific Research to work as a postdoctoral fellow at the Center for Infectious Disease Dynamics, Pennsylvania State University (USA). My work on the interactions between climate, mosquitoes and pathogens was novel and changed the research direction of lab. I published papers in high impact journals (3 PNAS papers, Global Change Biology, Nature Reviews Microbiology) and collaborated with researchers at the University of California Santa Barbara, UC Los Angeles, UC Davis, Institut Pasteur in France and the Indian Council of Medical Research.

In December 2012 I started as Assistant Research Professor at the ISGlobal. In Barcelona my group focusses on designing and testing new vector monitoring and control tools. By studying insect behavior, we identify new methods to improve mosquito capture rates and to reduce human-mosquito contact. I coordinate two projects at the moment: (1) A Grand Challenges Explorations (GCE, €95k) grant from the Gates Foundation. Partners: Biogents AG (Germany) and Institute of Materials Science of Barcelona (Spain), (2) A Combating Zika and Future Threats Grand Challenge grant (USAID, €680k). Partners: The GCE consortium (see (1)), Imperial College (UK) and the Ministry of Health (Guyana).

In 2013 I was appointed Head of the Entomology Unit at the Manhica Health Research Centre in Mozambique, one of the collaborating centers of ISGlobal. My group there works on vector surveillance, which includes detailed studies on mosquito abundance and behavior and susceptibility to insecticides. Effective vector control tools can be only be identified and implemented when adequate Entomological Intelligence is gathered. Within MALTEM (Mozambican Alliance Towards the Elimination of Malaria) I am currently coordinating all entomological surveillance and operational research activities and a large team of researchers and other staff (available budget €1.8m).

In Mozambique I work with the National Malaria Control Program, National Institutes of Health, WHO (regional, Mozambique, and international office, Switzerland), President Malaria Initiative (USA), Center for Disease Control and Prevention (USA), Clinton Health Access Initiative (USA), Goodbye Malaria (South Africa) and the Gates Foundation (USA) on activities related to capacity building, defining policy guidelines and the implementation of appropriate vector control tools.

Related to academic research, I have established strong and productive collaborations with researchers at (1) the WITS Research Institute for Malaria or WRIM (South Africa), Liverpool School of Tropical Medicine (UK); Organisation de Coordination pour la lutte contre les Endémies en Afrique centrale (Cameroon), University of California San Francisco (USA) and University of Notre Dame (USA).

Going forward, I plan to further develop my lines of research on (1) Entomological Intelligence and (2) new vector monitoring and control tools. The ultimate goal is that the knowledge my group generates will reduce disease morbidity and mortality, either indirectly by improving policy and implementation guidelines or through capacity building (training the next generation of researchers, implementers and policy makers) or directly by killing/repelling mosquito vectors.

Resumen del Currículum Vitae:

My aspiration is to conduct world-renowned academic research on the surveillance and control of mosquito vectors of infectious diseases (e.g. malaria, zika), with a clear impact in society by reducing disease morbidity and mortality.

My doctoral research made important contributions to the field of climate-malaria interactions. Field studies (Kenya) identified important climatic drivers of malaria, and I wrote the first meteorological models predicting water temperatures, which affect mosquito development and survival. To-date these data are used in various malaria models.

Following my doctoral degree I was awarded a competitive fellowship to continue my research at PennState (USA). My research on the effects of fluctuating temperatures on mosquito and pathogen development was novel and I published several highly-cited papers in high impact journals (PNAS - 3 papers, Ecology Letters, Global Change Biology).

My current research (ISGlobal) focusses on designing and testing new tools for the monitoring and control of mosquito vectors. I am currently the PI/coordinator of two competitive grants to (i) develop a novel mosquito sticky trap (funded by Gates Foundation) and (ii) develop an electronic mosquito repelling device (funded by USAID).



MINISTERIO
DE ECONOMÍA, INDUSTRIA
Y COMPETITIVIDAD



DIVISIÓN DE PROGRAMACIÓN
Y GESTIÓN ECONÓMICA Y
ADMINISTRATIVA

SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

As the head of the Entomology Unit at CISM (Mozambique) I am involved in malaria elimination entomological monitoring, which includes detailed studies on mosquito abundance and behavior and susceptibility to insecticides. Only with adequate "Entomological Intelligence" effective vector control tools can be selected. As a member of the Mozambican Alliance Towards the Elimination of Malaria (funded by the Gates Foundation and La Caixa) I contribute to capacity building at the Ministry of Health and CISM, and our entomological data inform national (Mozambique) and international (WHO) malaria policies.

To date I have published 35 papers, of which 12 as a first and 3 as the last author. In addition, I was the first author on a commentary in Nature Climate Change and contributed to a review in Nature Reviews Microbiology and three book chapters.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: PIÑERO LLORENS, DAVID PABLO
Referencia: RYC-2016-20471
Área Científica: Medicina Clínica y Epidemiología
Correo Electrónico: dppinero@hotmail.com

Título:

Propiedades ópticas y biomecánicas de la córnea y su impacto refractivo

Resumen de la Memoria:

Mi trayectoria investigadora se inició en la Clínica Universitaria de la Universidad de Navarra en colaboración con el Doctor Miguel Maldonado. Mis trabajos de investigación iniciales se focalizaban en el análisis de los cambios corneales tras la corrección de errores refractivos mediante láser excímer así como el análisis de la fiabilidad de diversos dispositivos topográficos. Tras este período, inicié mi actividad investigadora en el Departamento de I+D+i de la Corporación Vissum en colaboración con el Profesor Jorge Alió. Fue una etapa muy productiva que me permitió definir mi línea de investigación. Se publicaron en este período un total de 85 artículos peer-reviewed, siendo la temática principal el estudio de la córnea desde diferentes perspectivas y tras distintos tipos de tratamientos y cirugías. Colaboré en diversos proyectos de investigación públicos y privados, estando la mayoría focalizados a la caracterización y optimización del efecto de diverso tipo de implantes corneales e intraoculares.

En los últimos años, he estado trabajando en el Departamento de Oftalmología (OFTALMAR) del Hospital Vithas Internacional Medimar y desarrollando simultáneamente actividades de investigación con el "Grupo de Óptica y Percepción Visual" de la Universidad de Alicante, y colaborando y trabajando en diversas instituciones y empresas europeas (TargoMed de Alemania, Premium Clinic de República Checa, Kartal Training and Research Hospital de Estambul, Facultad de Medicina de la Universidad de Gaziantep de Turquía, Facultad de Medicina de la Universidad de Alejandría). En este tiempo, he continuado mis actividades de investigación en el ámbito de las propiedades ópticas y biomecánicas de la córnea así como en el estudio de técnicas de cirugía refractiva basadas en la modificación de dichas propiedades. Asimismo, he iniciado una importante actividad investigadora en el ámbito de las lentes de contacto y su interacción con la estructura corneal. He sido investigador principal de cuatro proyectos de investigación públicos, siendo la finalidad en dos de ellos obtener nuevos algoritmos para optimizar la estimación del poder óptico de la córnea tras cirugía refractiva y en queratocono, en otro la obtención de un nuevo índice de screening y en otro la patente de un nuevo diseño de lente de contacto. El resultado de esos proyectos han sido dos tesis doctorales que he co-dirigido con el Doctor Vicent Camps, una patente y un total de 7 publicaciones en revistas científicas peer-reviewed. Además, he coordinado en OFTALMAR el Proyecto Europeo POPCORN dentro del 7º Programa Marco (Research for SMEs, Grant Agreement number 606634). El objetivo de este Proyecto ha sido desarrollar un nuevo sistema para la caracterización de las propiedades biomecánicas de la córnea usando los fundamentos de la plenóptica. Para tal propósito, he coordinado un consorcio de 4 PYMEs y 3 institutos tecnológicos europeos, habiendo dado como resultado una patente y diversas publicaciones científicas. Por último, he recibido varios reconocimientos y premios por mi actividad investigadora y, entre ellos, la consideración por la revista "The Ophthalmologist" como el 12º autor científico del mundo con más contribuciones científicas en el ámbito de la visión y el 5º del mundo en el ámbito del queratocono.

Resumen del Currículum Vitae:

Soy Diplomado en Óptica y Optometría por la Universidad de Alicante (1998), graduado en Documentación por la Universitat Oberta de Catalunya (2006) y Graduado en Óptica y Optometría por la Universidad de Alicante (2011). Obtuve el título de Doctor en Ciencias de la Visión Doctor por la Universidad de Alicante en 2010 con la defensa de la tesis doctoral titulada "Caracterización y modelización del efecto de los segmentos de anillo intraestromales en córneas ectásicas". Asimismo, obtuve el título de Especialista Universitario en Optometría Pre- y Post-Quirúrgica por la Universidad de Valladolid en 2001.

Mi carrera profesional se caracteriza por la combinación de la tarea clínica, académica e investigadora. A nivel clínico, poseo una amplia experiencia en cirugía refractiva, segmento anterior, lentes de contacto, ortóptica y terapia visual, baja visión, y biomecánica corneal. Además de mi trabajo clínico, he sido profesor asociado del Departamento de Óptica, Farmacología y Anatomía de la Universidad de Alicante durante 12 años y soy actualmente Investigador Distinguido del mismo, así como miembro del grupo de Investigación GOPV (Grupo de Óptica y Percepción Visual) y del Instituto Universitario de Física Aplicada a las Ciencias y la Tecnología (IUFACYT) de la misma Universidad. Soy coordinador científico de la Fundación para la Calidad Visual (FUNCAVIS), así como asesor científico de IPASS (Investigación Personalizada al Servicio de la Salud S.L., Alicante, Spain). He publicado más 150 artículos científicos en revistas con índice de impacto, la mayoría de ellos en el ámbito de la córnea y la superficie ocular, y he participado en la elaboración de 20 capítulos de libro. Asimismo, he participado en más de 20 proyectos de investigación, actuando como coordinador en un Proyecto europeo del 7º Programa Marco (POPCORN project, Grant Agreement 606634) y como investigador principal en cuatro proyectos de investigación. He colaborado y realizado estancias en diversas instituciones europeas en el último año, incluyendo la empresa alemana de servicios científicos TargoMed GmbH. Fui considerado en 2014 por la revista "The Ophthalmologist" (Número Febrero 2014) como el 12º autor del mundo con mayor número de contribuciones científicas impactadas en el campo de la Oftalmología y Ciencias de la Visión y el 5º autor científico del mundo más relevante en el ámbito de la investigación del queratocono. Soy, a su vez, editor Asociado de las revistas científicas Journal of Optometry, BMC Ophthalmology y Journal of Ophthalmology.



MINISTERIO
DE ECONOMÍA, INDUSTRIA
Y COMPETITIVIDAD

**AYUDAS RAMÓN Y CAJAL
CONVOCATORIA 2016**

Turno de acceso general



DIVISIÓN DE PROGRAMACIÓN
Y GESTIÓN ECONÓMICA Y
ADMINISTRATIVA

SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: RAMOS MIGUEL, ALFREDO
Referencia: RYC-2016-19282
Área Científica: Medicina Clínica y Epidemiología
Correo Electrónico: alfredo.ramos.miguel@gmail.com

Título:

SYNAPTIC MECHANISMS IN PSYCHIATRIC DISORDERS: POTENTIAL TARGETS FOR NOVEL DRUG DEVELOPMENT

Resumen de la Memoria:

Combined, psychiatric disorders are the leading cause of disability worldwide. Perhaps because of their inherent social stigma, mental illnesses represent a particularly sensitive matter in modern societies. Looking back on my career, I feel fortunate that all my efforts and achievements have been devoted to improve human mental health condition.

My Doctoral work, spanning from November 2005 to December 2010, unmasked some of the molecular pathways by which drugs of abuse, and especially opiates, interact with reward mechanisms leading to the complex behaviors that define addiction. Using animal models and postmortem human brain tissue from heroin abusers, we found that the so-called apoptotic proteins can mediate non-apoptotic actions linked to opioid-induced neuroplasticity. We postulated that the signaling complex built upon Fas receptor-FADD adaptor (Fas-associated protein with death domain) interaction might act as a cell-fate regulator, integrating death signals with other pathways stimulated by G protein-coupled receptors, in order to yield an adaptive cellular response to multiple drugs. Notably, my Doctoral Thesis was supported by 5 original publications in international prestigious peer-reviewed journals.

As a Postdoc, I made relevant discoveries on how a deregulation of the presynaptic machinery of neurosecretion (i.e. SNARE complex and other molecular partners) contributes to diverse psychiatric conditions, from schizophrenia to age-related cognitive decline and dementia. I developed a technique that allowed us to trace the presynaptic activity nearest to death in postmortem brain tissue, and also separate between inhibitory and excitatory function. We showed that overall (but especially inhibitory) SNARE function was elevated in schizophrenia postmortem brain. This was not due to antipsychotic medication, as animals treated with haloperidol or clozapine did not mirror such alterations. In the other hand, presynaptic dysfunction paralleled cognitive decline and dementia in a large sample from a community-based aging study. Inhibitory synapse markers (Munc18-1 long variant, and complexin-1) and SNARE function predicted cognitive impairment regardless of, and apparently preceding amyloid- β and/or tau deposition. Consequently, we screened for compounds that could reversibly modulate SNARE function as potential drugs that may target cognitive deficits in schizophrenia (i.e. SNARE inhibitors) and demented elderly (i.e. SNARE agonists). While we already identified at least 14 SNARE inhibitors, our screening assay method was probably less sensitive to detect SNARE agonists. Follow-up in vitro and in vivo studies on the positive hits are currently ongoing. Among the honors achieved during my postdoctoral period, I may highlight the award from Michael Smith Foundation for Health Research, granting my research activities, the Necia Laura May Elvin Memorial Prize, or the 10 original articles published.

Overall, my experience on protein functional assays using postmortem human brains with psychiatric conditions, and my skills manipulating animal models of human brain diseases, together with my strong background in Neuropharmacology and drug development, may be of great value to investigate novel pharmacological solutions for mental illnesses, with especial emphasis on schizophrenia.

Resumen del Currículum Vitae:

ACADEMIC DEGREES

2010/12 ☐ Ph.D. in Biology (Psychopharmacology) University of the Balearic Islands, Palma de Mallorca, Spain.

2004/03 ☐ M.Sc. in Molecular Biology and Biochemistry, Autonomous University of Madrid, Madrid, Spain.

RESEARCH POSITIONS

Since 2016/9 ☐ Research Associate, Dept. of Psychiatry, University of British Columbia (UBC), Canada

2012/3 to 2016/8 ☐ Post-Doctoral Research Fellow, Dept. of Psychiatry, University of British Columbia (UBC), Canada

2010/12 to 2012/2 ☐ Post-Doctoral Research Fellow, Dept. of Biology, University of the Balearic Islands, Palma de Mallorca, Spain.

2005/11 to 2010/12 ☐ Pre-Doctoral Fellow, Dept. of Biology, University of the Balearic Islands, Palma de Mallorca, Spain.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

2004/09 to 2005/03 ☐ ARGO/Leonardo Research Fellow, Agrotechnology & Food Innovations B.V. Wageningen University & Research Centrum, The Netherlands.

TEACHING EXPERIENCE

2015/10 to 2016/06 ☐ Co-advisor in "Role of BDNF and COMT polymorphisms in the synaptic deficits in schizophrenia" by Ryan Yan, Directed Studies in Pharmacology (Undergraduate Programme), Dept. of Anesthesiology, Pharmacology and Therapeutics, University of British Columbia (ongoing).

2015/01 to 2015/06 ☐ Co-advisor in "Cost-effective, concurrent genotyping of 8 single nucleotide polymorphisms of the Catechol-O-Methyltransferase (COMT) gene by Tetra-Primer Amplification Refractory System" by Cathy K Wang, Directed Studies in Pharmacology (Undergraduate Programme), Dept. of Anesthesiology, Pharmacology and Therapeutics, University of British Columbia.

50 hours as lecturer for MSc. and BSc. students in the course "Farmacología Humana" (Human Pharmacology), in the Biology Programme. Dept. of Biology, University of the Balearic Islands.

FUNDING HISTORY

2013/9 to 2015/12 ☐ 2013 Post Doctoral Research Competition Award. Funded by the 'Michael Smith Foundation for Health Research' and the 'BC Schizophrenia Society Foundation'. Operating grant CA\$ 93,375.00. Project title: Screening and development of molecules targeting presynaptic SNARE protein-protein interactions as novel pharmacological strategy in schizophrenia and other mental illnesses.

Participation as a team member in another 10 national or international competitive grant-funded research projects.

PRIZES AND AWARDS

2015/6 ☐ Necia Laura May Elvin Memorial Prize in Schizophrenia Research. Department of Psychiatry ☐ University of British Columbia.

2010/9 ☐ Travel Award at the 23rd European College of Neuropsychopharmacology (ECNP) Congress

2009/9 ☐ Travel Award at the 22nd ECNP Congress

2008/9 ☐ Travel Award at the 21st ECNP Congress

2006/9 ☐ Best Poster Presentation at the 28th Congress of the Spanish Society of Pharmacology

PUBLICATION RECORDS

- 19 original publications in peer-reviewed indexed journals, including 12 as the first listed author, and 2 as the corresponding author. Among them, 5 were published in journals ranked within the first decile of their respective categories, and another 8 within the first quartile.

- 2 manuscripts under review.

- 1 book chapter.

- 25 participations in national or international scientific congresses, including 3 symposium presentations.

JOURNAL REVIEW ACTIVITIES

Ad hoc reviewer for the scientific journals Neuropharmacology, European Neuropsychopharmacology, Progress in Neuropsychopharmacology & Biological Psychiatry.



AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

Nombre: ALTMAE , SIGNE
Referencia: RYC-2016-21199
Área Científica: Medicina Clínica y Epidemiología
Correo Electrónico: signealtmae@ugr.es

Título:

Female infertility, uterine receptivity and embryo implantation

Resumen de la Memoria:

Infertility is an increasing medical and social problem affecting and preventing parenthood in up to 20% of couples. To stress the importance of infertility, the Nobel Prize in 2010 was awarded for the development of in vitro fertilization (IVF), which is the most effective technique in treating infertility. My PhD thesis (2010) demonstrated that genetic variation in hormone-associated genes influences IVF outcome (Altmäe et al. 2011 HRU, IF 11.2). During my 7-year Post-Doctoral period at the World-leading medical university Karolinska Institutet, and as Marie Curie Post-Doctoral Researcher at the University of Granada I developed and led a new research line, where I demonstrated that many infertile women have aberrant uterine gene expression patterns and embryo cannot implant. Further, based on the molecular analyses I identified the best IVF treatment protocol for women with implantation failure, which is an important step towards individualised infertility treatment. In 2013 I gathered, led and coordinated top researchers in reproductive medicine from all around the World (Europe-USA-Australia) in order to provide the highly-needed GUIDELINES for the design, analysis and interpretation of 'omics' data (Altmäe et al. 2014 HRU, IF 11.2), which definitely is one of my top contributions to the field. Another very important contribution to the field is my position as Junior Deputy at European Society of Human Reproduction and Embryology (ESHRE). ESHRE is the World-leading society in the field (being ahead also of USA, because of its many ethical restrictions in embryo research). ESHRE leads the education/teaching in reproductive medicine in the World via organising conferences, workshops, seminars, advanced training courses, e-learning.

Now, working as Senior Marie Curie Researcher at Karolinska Institutet and as Principal Investigator at the Competence Centre on Health Technologies, I am leading a research team. Our groundbreaking discovery of understanding embryo implantation is the identification of the first interacting molecular networks (INTERACTOME) of embryo and uterus (Submitted to Nature Communications, me as senior/last author). Further, we have identified a unique set of biomarkers (Altmäe et al. Sci Reports, decision pending), based on which we are currently developing a uterine receptivity test (patent in preparation).

In spite of 2 important career-breaks (maternity leaves in 2013 and 2015), I have accumulated outstanding scientific records: 70 scientific publications, Section Editor/Editorial Board in scientific journals, PI or WP leader in international projects (funding >45 million EUR), international teaching-supervision, member of boards/committees and external reviewer, and 25 scientific awards, distinctions and fellowships.

Resumen del Currículum Vitae:

In 2010 I obtained my Doctoral Degree in Gene Technology at the University of Tartu (Estonia), which followed by a 20-months Post-Doctoral period at Karolinska Institutet (Sweden). In 2011 I was awarded with a competitive Spanish Ministry grant 'Estancias de jóvenes doctores extranjeros en centros Españoles' and in 2013 I obtained the highly prestigious Marie Curie Post-Doctoral Individual Fellowship for performing Post-Doctoral research at the University of Granada (Spain).

In 2016 I was elected as Marie Curie Senior Researcher at the Department of Women's and Children's Health, Karolinska Institutet, and in 2017 I continue as a Principal Investigator at Competence Centre on Health Technologies which elegantly has finalised my 7-year Post-Doctoral period and placed me as an experienced, mature researcher in the field of reproductive medicine. I am leading a highly innovative research line investigating single-cell transcriptome (RNA-seq) in human embryos and uterus in order to unravel the molecular aspects of human embryo implantation.

To summarise, my biggest achievements and contributions to date are:

- 70 scientific publications, where 2 are published in the top high-impact journal Human Reproduction Update (IF 11.2).
- Gathering, coordinating and leading a network of top scientists from all around the World in the reproductive medicine field (Europe, USA, Australia, including Stanford, UCSF, Southampton, Utrecht, Leuven Universities) that resulted in GUIDELINES for the design, analysis and interpretation of 'omics' data in Human Reproduction (Altmäe et al. 2014 Hum Reprod Update, IF 11.2).
- Elected as Junior Deputy in European Society of Human Reproduction and Embryology (ESHRE) Special Interest Group of Reproductive Genetics that is the World-leading society in organising training courses and conferences/meetings and communicates research to lay public (www.eshre.eu/Specialty-groups/Special-Interest-Groups/Reproductive-Genetics/Coordination.aspx).
- Highly competitive and prestigious Marie Curie Post-Doctoral grant.
- Funding from R+D+I activities, 14 international and national projects with total funding >45 million EUR.
- PI in FP7 Marie Curie Grant, WP leader in FP7 SARM project, WP leader in national IUT34-16 project, Leading Scientist of OMICS in national MINECO grant.
- Elected as Senior Marie Curie Researcher in FP7 IAPP project.
- Invited speaker to 19 international conferences and workshops, and most importantly an invitation in 2015 as a main speaker at the most



MINISTERIO
DE ECONOMÍA, INDUSTRIA
Y COMPETITIVIDAD



DIVISIÓN DE PROGRAMACIÓN
Y GESTIÓN ECONÓMICA Y
ADMINISTRATIVA

SUBDIVISIÓN DE
PLANIFICACIÓN Y GESTIÓN
ADMINISTRATIVA

AYUDAS RAMÓN Y CAJAL CONVOCATORIA 2016

Turno de acceso general

important meeting in reproductive medicine field in the World (including USA societies), the Annual Meeting of ESHRE.

- Invited as session chair in ESHRE Annual Meetings (2016 and 2017).
- Section Editor in Reproductive BioMedicine Online Journal (Quartile 1 in the field).
- Expert reviewer in international grants.
- Member in expert groups, scientific committees, and scientific boards.
- International and national Master/PhD theses supervision, and teaching at graduate and doctorate courses at 6 different Universities in Europe.
- 25 scientific awards, distinctions and fellowships.