



M.Sc, Ph.D. Biochemistry, Molecular Biology and Biomedicine

Senior postdoctoral Fellow

Neuroimmuno-Repair Group (Lab i2-04)

National Hospital of Paraplegics

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1. UNIVERSITY EDUCATION

- Bachelor of Biology (field of Experimental Science) (2001). University of Jaen, Andalusia, Spain.
- M.S in Biochemistry, Molecular Biology and Biomedicine (2005). School of Medicine. Autonomous University of Madrid, Community of Madrid, Spain.
- Ph.D. "Cum Laude" on Chemistry (field of Biochemistry and Molecular Biology) (2007). University of Castilla-La Mancha, Castile-La Mancha, Spain.

2. RESEARCH EXPERIENCE

- Present:** Senior Postdoctoral Fellow. Neuroimmuno-repair research group (GNIR). Experimental Neurology Department (END), National Hospital of Paraplegics, Spain.
- 2016-present:** Adjunct Researcher (Honorary Academic member). Wicking Dementia Research and Education Centre. Faculty of Health, University of Tasmania (Australia). URL for web site: https://rmdb.research.utas.edu.au/public/rmdb/q/indiv_detail_warp_trans/34902.
- 2013-2016:** Postdoctoral Fellow. Wicking Dementia Research and Education Centre. Faculty of Health, University of Tasmania (Australia).
- 2008–2012:** Postdoctoral Fellow. Experimental Neurology Department (END), National Hospital of Paraplegics, Spain.
- 2003–2007:** Predoctoral student. Laboratory of Biochemistry and Molecular Biology. University of Castilla-La Mancha and The Regional Centre of Scientific Biomedical Research, Spain.
- 2000–2001:** Undergraduate student. Animal Biology Department. University of Jaen, Spain.

3. PUBLICATIONS

3.1. Original manuscripts

2018

-Yao Liu, **Carmen M. Fernandez-Martos**, Kelsey Hanson, James C. Vickers and Anna E. King. *Complementary function of leptin and pioglitazone in amyloid- β pathology reduction of APP/PS1 transgenic mice*. **Plos Biology**. 2018. Under review

-Woodhouse A, **Fernandez-Martos CM**, Atkinson RAK, Hanson K, Collins JM, O'Mara A, Terblanche N, Skinner M, Vickers JC, King AE. *Repeat propofol anesthesia does not exacerbate plaque deposition or synapse loss in APP/PS1 Alzheimer's disease mice*. **BMC Anesthesiology**. 2018. In Press

-María Rodríguez, Cristina Pintado, Eduardo Moltó, Nilda Gallardo, **Carmen M. Fernández-Martos**, Virginia López, Antonio Andrés and Carmen Arribas. *Hypothalamic s-resistin deficiency ameliorates central inflammation and increases whole body insulin sensitivity*. **Sci Rep**. 2018 Mar 2;8(1):3921. doi: 10.1038/s41598-018-22255-3.

-Anna E. King, Anna Brain, Kelsey Hanson, Justin Dittmann, James C. Vickers, **Carmen M. Fernandez-Martos***. *Disruption of leptin signalling in a mouse model of Alzheimer's disease*. **Metabolic Brain Disease**. 2018 Mar 15. doi: 10.1007/s11011-018-0203-9. (*Corresponding author).

2017

-Kelsey Hanson, **Carmen M. Fernandez-Martos**, James C Vickers, Anna E. King. *The role of microtubules in excitotoxin-induced axon degeneration*. **Alzheimer's and Dementia**. 2017 July; 13(7):P953. doi: 10.1016/j.jalz.2017.06.1268

-Stuart KE, King AE, **Fernandez-Martos CM**, Dittmann J, Summers MJ, Vickers JC. *Environmental novelty exacerbates stress hormones and A β pathology in an Alzheimer's model*. **Sci Rep**. 2017 Jun 5;7(1):2764. doi: 10.1038/s41598-017-03016-0.

-Stuart KE, King AE, **Fernandez-Martos CM**, Dittmann J, Summers MJ, Vickers JC. *Mid-life environmental enrichment increases synaptic density in CA1 in a mouse model of A β -associated pathology and positively influences synaptic and cognitive health in healthy ageing*. **J Comp Neurol**. 2017 Jun 1;525(8):1797-1810. doi: 10.1002/cne.24156.

2016

-**Carmen M. Fernandez-Martos***, Rachel Atkinson, Meng Inn Chuah, Anna King, James C. Vickers. *Combination treatment with leptin and pioglitazone in a mouse model of Alzheimer's disease*. **Alzheimer's & Dementia (N Y)**. 2016 Dec 20;3(1):92-106 (*Corresponding author).

2015

-Yao Liu, Rachel Atkinson, **Carmen Fernandez-Martos**, Matthew Kirkcaldie, Tracey C. Dickson, James C. Vickers, Anna King. *Changes to TDP43 expression in young adult and aging neurofilament light protein knockout mice*. **Neurobiol Aging**. 2015; 36(2):1151-9. doi: 10.1016/j.neurobiolaging.2014.10.001.

-**Carmen M. Fernandez-Martos***, Anna E. King, Rachel A.K. Atkinson, Adele Woodhouse, James C. Vickers. *Neurofilament light gene deletion exacerbates amyloid, dystrophic neurite and synaptic pathology in the APP/PS1 transgenic model of Alzheimer's disease*. **Neurobiology of Aging**. **2015**. 36(10):2757-67 (*Corresponding author).

-Atkinson RA, **Fernandez-Martos CM**, Atkin JD, Vickers JC, King AE. *C9ORF72 cellular localization and expression over mouse development*. **Acta Neuropathologica Communications**. **2015**. 25;3:59. doi: 10.1186/s40478-015-0238-7

2014

-Carlos Gonzalez-Fernandez; **Carmen Fernandez-Martos**; SD Shields; E Arenas; FJ Rodriguez. *Wnts are expressed in the spinal cord of adult mice and are differentially induced after injury*. **Journal of Neurotrauma** **2014**. 31 -6, pp. 565 - 581.

2013

-Pau Gonzalez Snachez; **Carmen Fernandez-Martos**; Ernest Arenas; Francisco Javier Rodriguez Muñoz. *The Ryk receptor is expressed in glial and fibronectin-expressing cells after spinal cord injury*. **Journal of Neurotrauma** **2013**. 30 -10, pp. 806 - 817.

2012

-*Pau Gonzalez Sanchez; ***Carmen Maria Fernandez-Martos**; *Carlos Gonzalez-Fernandez; Ernest Arenas; Francisco Javier Rodriguez Muñoz. *Spatio-temporal expression pattern of Frizzled receptors after contusive spinal cord injury in adult rats*. **PLoS One** **2012**. 7 - 12, pp. 1 - 18. (*co-first authors).

-**Carmen Maria Fernandez-Martos**; Pau Gonzalez Sanchez; Francisco Javier Rodriguez Muñoz. *Acute leptin treatment enhances functional recovery after spinal cord injury*. **PLoS One** **2012**. 7 - 4, pp. 1 - 15.

2011

-**Carmen Maria Fernandez-Martos**; Carlos Gonzalez-Fernandez; Pau Gonzalez-Sanchez; Alfredo MaquedaFernandez; Ernest Arenas; Francisco Javier Rodriguez Muñoz. *Differential expression of Wnts after spinal cordcontusion injury in adult rats*. **PLoS One** **2011**. 6 - 11, pp. 1 - 11.

2010

-Wolfgang Pita-Thomas; **Carmen Fernandez-Martos**; Monica Yunta; Rodrigo M. Maza; Rosa Navarro-Ruiz; Marcos Javier Lopez-Rodriguez; David Reigada; Manuel Nieto-Sampedro; Manuel Nieto-Diaz. *Gene expression of axon growth promoting factors in the deer antler*. **PLoS One** **2010**. 5 - 12, pp. 1 - 13.

-**CM Fernandez**; A del Arco; N Gallardo; L Aguado; M Rodriguez; M Ros; JM Carrascosa; A Andres; C Arribas. *S-resistin inhibits adipocyte differentiation and increases TNFalpha expression and secretion in 3T3-L1 cells*. **Biochimica et Biophysica Acta (BBA) - Molecular Cell Research** **2010**. 1803 - 10, pp. 1131 - 1141.

-M. Nieto-Diaz; W. Pita-Thomas; R. M. Maza; M. Yunta-Gonzalez; M. J. Lopez-Rodríguez; R. Navarro-Ruiz; D. Reigada; **C. Fernandez-Martos**; M. Nieto-Sampedro. *Factors promoting axon growth in the deer antler*. **Animal Production Science** **2010**. 51 - 4, pp. 351 - 354.

3.2. Reviews

-JC Vickers, A Woodhouse, **CM Fernandez-Martos**, MT Kirkcaldie, AJ Canty, GH McCormack, AE King. Defining the earliest pathological changes of Alzheimer's disease. **Curr Alzheimer Res.** **2016**; 13(3):281-7.

4. GRANTED RESEARCH PROJECTS

4.1. Research projects as principal investigator (PI) or co-principal investigator (Co-PI)

2015: '*Axon protection in Alzheimer's disease*'. The Judith Jane Mason & Harold Stannett Williams Memorial, Australia. **Total amount: 38 316€.** **Role: Co-PI.**

2014: '*Leptin and Pioglitazone: a new potential therapeutic intervention for Alzheimer disease (AD)*'. **Early Career Researcher grants (ECRG)**. University of Tasmania (UTAS). Hobart, Australia. **Total amount: 3 241€.** **Role: PI.**

2013: '*Characterization of the physiological effect of neurofilament light subunit (NFL) protein deficiency in Alzheimer's disease pathology: a new therapeutic target for neurodegenerative disease*'. **Research Enhancement grants (REGS)**, Australia. **Total amount: 9 401€.** **Role: PI.**

4.2. Research projects as research associated

2009-2012: '*Neuroprotección y reparación de lesiones traumáticas de médula espinal mediante la administración combinada de fármacos y transplantes de glía envolvente adulta*'. Fondo de Investigaciones Sanitarias. Instituto de Salud Carlos III, Spanish Government. **Total amount: €153,971.**

2009-2011: '*Estudio del papel de la proteína inhibidora de apoptosis XIAP en nuevas terapias neuroprotectoras*'. Fondo de Investigación Sanitaria (FIS), Spanish Government. **Total amount: €80,596.**

2009-2011: '*Identificación y caracterización de los miRNAs mediadores de la actividad apoptótica de la familia IAP y su potencial terapéutico en la lesión secundaria de médula espinal*'. Fundación para la Investigación Sanitaria en Castilla-La Mancha (FISCAM). Spanish Government. **Total amount: €114,335.**

2008: '*Los miRNAs neuroprotectores en la lesión neurotraumática de la médula espinal*'. Mapfre Foundation. Spanish Government. **Total amount: €15,000.**

5. INDUSTRIAL AND INTELLECTUAL PROPERTY (PATENS)

2016: P103371, AU 2016902618 (Provisional patent application). Entitled: *Combination Therapy for AD*. **Inventors: Dr. Carmen Fernandez-Martos**, Professor James Vickers and Assoc/ Prof. Anna King. University of Tasmania (Australia).

2012: P201130261, ES 2395343 A1. Entitled: *Use of ObRb agonist receptor as a novel therapeutic treatment of CNS injury and Neuropathic Pain*. **Inventors:** **Dr. Carmen Fernandez-Martos** and Dr. Francisco J. Rodriguez, Research division of Medicine and Health Science, Spain. Founding support from Genome Foundation, Spain.

6. AWARDS

2017: Seal of excellence. Marie Skłodowska-Curie Actions. **Project Entitled:** *Implication of leptin signaling alteration in the neurological damages caused by high fat diet consumption during the adolescence*. The European Commission Framework Programme for Research and Innovation 2014-2020. Europe.

2015: Travel Fellowship. Research conference support scheme (RCSS). ANS and ISN International Society for Neurochemistry. University of Tasmania (Australia).

2011: Best work on Biomedical Research. Castilla-La Mancha Social Health-Care Foundation (JCCM). Spanish Government.

2008: Travel Fellowship. Training Course in stem cells and Conference in Regenerative Medicine. Marie Curie Conferences & Training Courses. Albrecht-Kossel-Institute for Neurodegeneration University of Rostock–Medical Faculty, Germany.

7. ACADEMIC ACTIVITIES

- **Teaching fields:** Neuroscience, Alzheimer's disease, Biochemistry.
- **Teaching expertise:** I have the **accreditation as assistant professor** (currently I'm waiting the results of my curricular evaluation as professor) from The National Agency for Quality Assessment and Accreditation of Spain (ANECA). In addition, at the University of Tasmania, I have developed and delivered lectures, practical and tutorials, including marking assessments in undergraduate units offered by the School of Medicine.
- **Teaching responsibility**
 - Neuroscience (CHP311/312)
 - Biochemistry (CBA344)
 - Bachelor in Dementia. Lecturer title: The Art & Science of Clinical Trials (CAD303)
- **Supervision of international graduate students and/ or postdoctoral fellows**

2014-present: 2 PhD students, University of Tasmania (Australia). **Role: Co-supervisor**

2014-2015: 2 masters students, University of Tasmania (Australia). **Role: Co-supervisor**

2013-2016: 7 undergraduate students, Biochemistry project, University of Tasmania (Australia). **Role: supervisor.**
- **Supervision of national graduate students and/ or postdoctoral fellows**

2017-2018: 1 undergraduate student, Biochemistry project (TGF), University of Castilla-La Mancha (Spain). **Role: Supervisor.**

8. R&D MANAGEMENT AND PARTICIPATION IN SCIENTIFIC COMMITTEES.

8.1. Scientific, technical and/or assessment committees

2016- European Commission Expert

9. OTHER RESEARCH ACTIVITIES

9.1. Organisation of scientific meetings

2015- Organization committee and LOC (Oral and Poster Session Judging Subcommittee). Australian Neuroscience Society (ANS) conference, 2016. Tasmania, Australia.

2015- Wicking Learning Day Symposium. LOC (Poster Session Judging Subcommittee). Wicking Dementia Research and Education Centre. Tasmania, Australia.

9.2. Evaluation and revision of r&d projects and articles

2017: Neurobiology of Disease

2017: Acta Neuropathologica Communications

2015: Editorial board. International Journal of Neurological Disorders & Interventions.

2014: Editorial board. Neuroimmunology and Neuroinflammation. Asia-Pacific Association of Medical Research.

2014: Neuroimmunology and Neuroinflammation.

2012: PLoS One.

9.3. Scientific societies and professional associations

2015: Spanish Researchers in Australia-Pacific (SRAP/IEAP).

2015: Australian Neuroscience Society (ANS).

2015: International society of Neurochemistry (ISN).

2013: Australian Brain Foundation.

2011: Federation of European Neurosciences.