

CV Date	21/09/2021
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Part A. PERSONAL INFORMATION

First Name *	JOSE ANTONIO		
Family Name *	RODRIGUEZ NAVARRO		
Sex *		Date of Birth *	12/07/1977
ID number Social Security, Passport *		Phone Number	
URL Web	https://www.irykis.org/en/research/research-groups/2/experimental-neurology		
Email Address *	jarn@ucm.es		
Researcher's identification number	Open Researcher and Contributor ID (ORCID)*	0000-0002-0741-6338	
	Researcher ID		
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* Mandatory

A.1. Current position

Job Title	ASSOCIATE PROFESSOR		
Starting date	2021		
Institution	Universidad Complutense de Madrid		
Department / Centre			
Country		Phone Number	
Keywords			

Part B. CV SUMMARY

During my doctoral thesis we characterized the effects of the elimination of parkin, an E3 ubiquitin ligase implicated in Parkinson's disease, in cellular and animal models and the effects of different compounds in neuronal and glial cultures from parkin-KO mice. These mice had a lower life expectancy and mitochondrial defects, greater oxidative stress and accumulation of tau with age. The elimination of parkin increases the lesions in the dopaminergic system and spinal cord of mice that overexpress mutated human tau. With aging these mice show cerebral and systemic amyloidosis.

In my first postdoc (2007-2010), we found that trehalose, a sugar that stimulates autophagy, reverses much of the defects found in these mice. To deepen the study of autophagy I made a stay of 4 months in the laboratory of Dr. Cuervo where I joined as a postdoctoral focusing on chaperone-mediated autophagy (CMA). We found that diets high in fat and cholesterol and aging affect negatively, due to changes in the lipid composition of lysosome membranes that affect CMA activity. After joining the Ramón y Cajal Institute for Health Research (IRYCIS) in July 2014, we studied the role of different forms of autophagy in Parkinson's disease in taupatas, as well as in the function of glial cells.

We recently characterized the effect of elimination by the loxcre system of the receptor on the hippocampal and cortex neurons to study the effects on taupatas and Alzheimer's disease (Cell 2021) as well as in on dopaminergic neurons to study the effects on Parkinson's disease and on astrocytes (ongoing). We are studying with lipidomics and proteomics the changes in the autophageal vesicles and different lysosomal and mitochondrial populations in Parkinson's models with altered mitophagy. We handle animal models of Parkinson's, taupatas, Alzheimer's and Huntington. In collaboration with clinicians now integrated in our group, we plan to evaluate the efficacy and safety of trehalose as a treatment of patients with neurodegenerative diseases, and we study new biomarkers for the progression of chronic neurodegenerative diseases through - omic and novel technologies.

As director of the research group formed in 2014 we have directed 7 master students, trained 6 laboratory technicians, directed 2 PhD and secured funding for 2 current predoctoral students of the CAM's youth guarantee fund. We mentored a young researcher with a MINECO-JIN,

which obtained a Ramón y Cajal and leads its own line. We have established numerous national and international collaborations. We have exchanged researchers with the KU Leuven University (Belgium), Bonn U. (Germany) and Queen Mary U. (London). With Dr O'Loghlen we showed the anti-aging effects of small extracellular vesicles (Cell Metab 2020). With Dr Bejarano (Tufts University, NIH) we study intercellular communication, aging and glycation stress. We have obtained 5 projects as IP in competitive public calls and participated in the European COST-Transautophagy network. In 2018 we instaurate and are responsible of a new scientific facility in the IRYCIS for metabolic characterization (<https://www.irykis.org/en/services/23/characterisation-of-cellular-metabolism>).

In 2020 we were appointed head of the Experimental Neurology group of IRYCIS formed for 20 researchers. <https://www.irykis.org/en/research/researchgroups/2/experimental-neurology>. Since April 2021, I teach in the Complutense U. as Associate Professor.

Part C. RELEVANT ACCOMPLISHMENTS

C.1. Publications.

AC: corresponding author. (n^o x / n^o y): position / total authors. If applicable, indicate the number of citations

- 1 Scientific paper.** Bourdenx M; Martín-Segura A; Scrivo A; et al; Cuervo AM. 2021. Chaperone-mediated autophagy prevents collapse of the neuronal metastable proteome. Cell. ISSN 0092-8674.
- 2 Scientific paper.** Caballero B; Bourdenx M; Luengo E; et al; Cuervo AM. 2021. Acetylated tau inhibits chaperone-mediated autophagy and promotes tau pathology propagation in mice. Nature communications. 12, pp.2238.
- 3 Scientific paper.** Gemma Aragonès; Kalavathi Dasuri; ; Rodríguez-Navarro JA; ELOY BEJARANO; . 2020. Autophagic receptor p62 protects against glycation-derived toxicity and enhances viability Aging Cell .ISSN 1550-4131.
- 4 Scientific paper.** Rodríguez-Navarro JA; Fafián-Labora JA; O'Loghlen A. 2020. Extracellular vesicles as potential tools for regenerative therapy MOLECULAR AND CELLULAR ONCOLOGY. ISSN 1550-4131.
- 5 Scientific paper.** 2020. Inhibition of striatonigral autophagy as a link between cannabinoid intoxication and impairment of motor coordination. Blázquez C, Ruiz-Calvo A, Bajo-Grañeras R, Baufreton JM, Resel E, Varilh M, Pagano Zottola AC, Mariani Y, Cannich A, Rodríguez-Navarro JA, Marsicano G, Galve-Roperh I, Bellocchio L, Guzmán M. Elife. 2020 Aug 10;9:e56811. doi: .ELIFE.
- 6 Scientific paper.** Fafián-Labora JA; O'Loghlen A; Rodríguez-Navarro JA (A/C). 2020. Small Extracellular Vesicles Have GST Activity and Ameliorate Senescence-Related Tissue Damage. CELL METABOLISM. 32, pp.71-86.e5. ISSN 1550-4131.
- 7 Scientific paper.** Gaudioso A; Garcia-Rozas P; Casarejos MJ; Pastor O; Rodríguez-Navarro JA (AC). (5/5). 2019. Lipidomic Alterations in the Mitochondria of Aged Parkin Null Mice Relevant to Autophagy Lipidomic Alterations in the Mitochondria of Aged Parkin Null Mice Relevant to Autophagy. Frontiers in Neuroscience. 13, pp.329. ISSN 1662-453X.
- 8 Scientific paper.** Fafian-Labora J; Carpintero-Fernandez P; Jordan SJD; et al; Rodríguez-Navarro JA; O'Loghlen A. (7/9). 2019. FASN activity is important for the initial stages of the induction of senescence FASN activity is important for the initial stages of the induction of senescence. Cell Death & Disease. 10-4, pp.318. ISSN 2041-4889.
- 9 Scientific paper.** Dalluge JJ; Satori Chad P; Ramezani M; et al; Myer AF; Arriga EA. (5/10). 2018. Checkpoints for Preliminary Identification of Small Molecules found Enriched in Autophagosomes and Activated Mast Cell Secretions Analyzed by Comparative UPLC/MSe Checkpoints for Preliminary Identification of Small Molecules found Enriched in Autophagosomes and Activated Mast Cell Secretions Analyzed by Comparative UPLC/MSe. ANAL METHODS. 9-1, pp.46-54. ISSN 1759-9679.

- 10 **Scientific paper.** Ruiz-Calvo A; Maroto IB; Bajo-Grañeras R; et al; Rodríguez-Navarro JA; Guzmán M. (9/13). 2018. Pathway-Specific Control of Striatal Neuron Vulnerability by Corticostriatal Cannabinoid CB1 Receptors Pathway-Specific Control of Striatal Neuron Vulnerability by Corticostriatal Cannabinoid CB1 Receptors. CEREBRAL CROTEX. 28-1, pp.307-322. ISSN 1047-3211.
- 11 **Scientific paper.** Rodríguez Navarro, JA.; Bejarano, Eloy. 2016. Unique Features of Neuronal Autophagy: Considerations for Therapeutic Targeting Journal of PD Research. Springer. 1. ISSN 2328-9791.
- 12 **Scientific paper.** Tanase M; Zolla V; Clement CC; et al; Rodríguez-Navarro JA; Santambrogio L. (6/11). 2016. Hydrodynamic size-based separation and characterization of protein aggregates from total cell lysates Hydrodynamic size-based separation and characterization of protein aggregates from total cell lysates. NATURE PROTOCOLS. 10-1, pp.134-148. ISSN 1750-2799.
- 13 **Scientific paper.** Yang DS; Stavrides P; Saito M; et al; Rodríguez-Navarro JA; Nixon RA. (5/11). 2014. Defective macroautophagic turnover of brain lipids in the TgCRND8 Alzheimer mouse model: prevention by correcting lysosomal proteolytic deficits Defective macroautophagic turnover of brain lipids in the TgCRND8 Alzheimer mouse model: prevention by correcting lysosomal proteolytic deficits. BRAIN. 137, pp.3300-3318. ISSN 1460-2156.
- 14 **Scientific paper.** Rodríguez-Navarro JA; Kaushik S; Koga H; Dall'Armi C; Shui G; Wenk MR; Di Paolo G; Cuervo AM. 2012. Inhibitory effect of dietary lipids on chaperone-mediated autophagy Inhibitory effect of dietary lipids on chaperone-mediated autophagy. PNAS. pp.109-112. ISSN 0027-8424.
- 15 **Scientific paper.** Kaushik S; Rodríguez-Navarro; Arias E; Kiffin R; Sahu S; Schwartz GJ; Cuervo AM; Singh R. (2/8). 2011. Autophagy in Hypothalamic AgRP NeuronsRegulates Food Intake and Energy Balance Autophagy in Hypothalamic AgRP NeuronsRegulates Food Intake and Energy Balance. Cell Metabolism. CELL PRESS. 14-2, pp.173-183. ISSN 1550-4131.
- 16 **Scientific paper.** Rodríguez-Navarro JA; Rodríguez L; Casarejos MJ; et al; Mena MA. (1/9). 2010. Trehalose ameliorates dopaminergic and tau pathology in parkin deleted/tauoverexpressing mice through autophagy activation Trehalose ameliorates dopaminergic and tau pathology in parkin deleted/tauoverexpressing mice through autophagy activation. Neurobiology of Disease. ACADEMIC PRESS INC ELSEVIER SCIENCE. 39-3, pp.423-438. ISSN 1095-953X.
- 17 **Scientific paper.** Perucho J; Rubio I; Casarejos MJ; Gomez A; Rodríguez- Navarro JA; Solano RM; De Yebénes JG; Mena MA. (5/8). 2010. Anesthesia with Isoflurane Increases Amyloid Pathology in Mice Models of Alzheimer'S Disease nesthesia with Isoflurane Increases Amyloid Pathology in Mice Models of Alzheimer'S Disease. JOURNAL OF ALZHEIMERS DISEASE. IOS PRESS. 19-4, pp.1245-1257. ISSN 1387-2877.
- 18 **Scientific paper.** Rodríguez-Navarro, Jose A.; Gonzalo-Gobernado, Rafael; Herranz, Antonio S.; Gonzlez-Vigueras, Jose M.; Solis, Jose M.2009. High Potassium Induces Taurine Release by Osmosensitive and Osmoresistant Mechanisms in the Rat Hippocampus In Vivo JOURNAL OF NEUROSCIENCE RESEARCH. WILEY. 87-1, pp.208-217. ISSN 0360-4012, ISSN 1097-4547. WOS (14)
- 19 **Scientific paper.** Rodríguez-Navarro, Jose A.; Gomez, Ana; Rodal, Izaskun; et al; Mena, Maria A.2008. Parkin deletion causes cerebral and systemic amyloidosis in human mutated tau over-expressing mice HUMAN MOLECULAR GENETICS. OXFORD UNIV PRESS. 17-20, pp.3128-3143. ISSN 0964-6906. WOS (26)
- 20 **Scientific paper.** Rodríguez-Navarro, Jose A.; Solano, Rosa M.; Casarejos, Maria J.; Gomez, Ana; Perucho, Juan; de Yebenes, Justo Garcia; Mena, Maria A.2008. Gender differences and estrogen effects in parkin null mice JOURNAL OF NEUROCHEMISTRY. WILEY. 106-5, pp.2143-2157. ISSN 0022-3042, ISSN 1471-4159. WOS (27)
- 21 **Scientific paper.** Solano, Rosa M.; Casarejos, Maria J.; Menendez-Cuervo, Jamie; Rodríguez-Navarro, Jose A.; de Yebenes, Justo Garcia; Mena, Maria A.2008. Glial dysfunction in parkin null mice: Effects of aging JOURNAL OF NEUROSCIENCE. SOC NEUROSCIENCE. 28-3, pp.598-611. ISSN 0270-6474. WOS (62)

- 22 **Scientific paper.** Rodriguez-Navarro, Jose A.; Casarejos, M. Jos; Menendez, Jaime; Solano, Rosa M.; Rodal, Izaskun; Gomez, Ana; Garcia de Yebenes, Justo; Mena, Maria A.2007. Mortality, oxidative stress and tau accumulation during ageing in parkin null mice JOURNAL OF NEUROCHEMISTRY. WILEY. 103-1, pp.98-114. ISSN 0022-3042, ISSN 1471-4159. WOS (56)
- 23 **Scientific edition.** 2020. Cannabinoid-induced motor dysfunction via autophagy inhibition AUTOPHAGY.
- 24 **Review.** Bejarano E; Rodríguez-Navarro JA (AC). (2/2). 2014. Autophagy and amino acid metabolism in the brain: implications for epilepsy Autophagy and amino acid metabolism in the brain: implications for epilepsy. AMINO ACIDS. 47-10, pp.2113-2126. ISSN 1438-2199.
- 25 Mena, M. A.; Rodriguez-Navarro, J. A.; Ros, R.; de Yebenes, J. G.2008. On the Pathogenesis and Neuroprotective Treatment of Parkinson Disease: What have we Learned from the Genetic Forms of this Disease? CURRENT MEDICINAL CHEMISTRY. 15-23, pp.2305-2320. ISSN 0929-8673, ISSN 1875-533X. WOS (12)

C.3. R&D and innovation projects and contracts

- 1 **Project.** PLASMALOGENS, EXOSOMES AND AUTOPHAGY IN AGING AND NEURODEGENERATION. mineco PI21/. 1. (Hospital Universitario Ramón y Cajal). 01/09/2021-31/12/2024. 150.000 €. pi
- 2 **Project.** CAM_Ayudas para Ayudantes de Investigación. Empleo Juven. Predoctoral para el proyecto glial autophagy and neurodegeneration. PEJ-2019-AI/SAL-12877. 1. (Hospital Universitario Ramón y Cajal). 01/02/2020-31/01/2022. 50.000 €. Principal investigator. PI
- 3 **Project.** CAM_Ayudas para contratos Pre y Post Doctorales. Empleo Juven. Predoctoral para el proyecto glial autophagy and neurodegeneration. PEJD-2019-PRE/SAL-14467. 1. (Hospital Universitario Ramón y Cajal). 01/02/2020-31/01/2022. 25.000 €. PI
- 4 **Project.** Desarrollo del uso de un disacarido para el tratamiento de enfermedades neurodegenerativas. SAF2015-74507-JIN. ALICIA MANSILLA. (Hospital Universitario Ramón y Cajal). 31/12/2016-31/12/2019. 60.000 €. MENTOR PI
- 5 **Project.** Papel de la autofagia glial en neurodegeneración y envejecimiento.. SAF2016-78666 r. JOSE ANTONIO RODRIGUEZ NAVARRO. (Hospital Universitario Ramón y Cajal). 21/01/2017-21/12/2019. 150.000 €. PI
- 6 **Project.** CHAPERONE MEDIATED AUTOPHAGY AND MACROAUTOPHAGY IN PARKIN MEDIATED PARKINSON'S DISEASE AND TAUOPATHIES. NEW THERAPEUTICAL APPROACHES. FIS CP13/00234. JOSE ANTONIO RODRIGUEZ NAVARRO. (Hospital Universitario Ramón y Cajal). 21/07/2014-21/07/2017. 240.000 €. PI
- 7 **Project.** NEW AUTOPHAGY RELATED LIPID MODIFICATIONS IN AGING AND PARKINSON DISEASE. SAF2013-45570. JOSE ANTONIO RODRIGUEZ NAVARRO. (Hospital Universitario Ramón y Cajal). 21/07/2014-21/07/2017. 160.000 €. PI
- 8 **Project.** THE UBIQUITIN LIGASE PARKIN AND CHAPERONE-MEDIATED AUTOPHAGY. REVSON FOUNDATION. Jose Rodriguez Navarro. (DMB and Institute for Aging Research, AECOM). 01/07/2012-01/07/2014. 181.955 €. Co-ordinator. The applicant wrote the project, applied for the grant, and is developing the project. http://www.revsonfoundation.org/programs_biomed.html
- 9 **Contract.** UNIDAD DE CARACTERIZACIÓN METABÓLICA FIBIO-HRC. From 01/03/2018. 10.000 €.
- 10 **Contract.** REVSON FOUNDATION, País entidad financiadora: Estados Unidos de América, Tipo de entidad: Fundación REVSON Foundation. 01/09/2012-01/09/2014.