

Fecha del CVA	07/02/2023
---------------	------------

Parte A. DATOS PERSONALES

Nombre	Ana		
Apellidos	Sánchez Rodríguez		
Sexo	No Contesta	Fecha de Nacimiento	
DNI/NIE/Pasaporte			
URL Web			
Dirección Email			
Open Researcher and Contributor ID (ORCID)	0000-0002-3724-9470		

A.1. Situación profesional actual

Puesto	Postdoctorado		
Fecha inicio	2020		
Organismo / Institución	Consejo Superior de Investigaciones Científicas		
Departamento / Centro	Biodiversidad y Biología Evolutiva / Museo Nacional de Ciencias Naturales		
País	España	Teléfono	
Palabras clave	Reproducción (fisiología); Biología molecular; Reproducción animal		

A.2. Situación profesional anterior (incluye interrupciones en la carrera investigadora - indicar meses totales, según texto convocatoria-)

Periodo	Puesto / Institución / País
2015 - 2018	Predotorado / Universidad Complutense de Madrid / España

A.3. Formación académica

Grado/Master/Tesis	Universidad / País	Año
Programa Oficial de Doctorado en Veterinaria	Universidad Complutense de Madrid	2018

Parte B. RESUMEN DEL CV

Ana Sánchez-Rodríguez finished her PhD on Physiology of Reproduction at the Veterinary School (UCM) in December 2018, obtaining **the best qualification "cum laude"**. She graduated from Veterinary School, achieving the **second position** of her promotion and the **Extraordinary Prize of the Degree**. She completed a Master's degree in Virology and then studied the Diploma in "Biotecnologías de la Reproducción aplicadas a especies de interés veterinario".

During her PhD she worked with livestock species (rabbits and horses), focusing on their **Reproductive Physiology**. She gained experience in Molecular Biology (recombinant proteins, cell culture, western blotting, immunohistochemistry, immunofluorescence, conventional and real time PCR) and dose-response studies in vitro and in vivo. She visited the Universidade do Porto, Portugal, to learn new perspectives of semen and embryo handling in mares.

All this research culminated in the **publication** of 6 indexed papers (4 as first author), 3 science outreach articles (2 as first author), 13 abstracts to international congresses (6 as first author) and 10 abstracts to national congresses (7 as first author). She was invited to give a lecture about reproduction in rabbits in the I Symposium of Medicine and Production in rabbits (UCM). She participated as coordinator of the Scientific Committee of local congresses. Currently, she is co-author of a total of 10 indexed papers and 4 research outtakes articles related to Animal Physiology, particularly Reproductive Physiology. Her research has opened new perspectives in the artificial insemination in rabbits, since during her PhD she produced a recombinant protein called NGF using the gene sequence obtained from the rabbit prostate. This novel protein from

rabbit origin is now being used for in vivo and in vitro studies (national project RTI2018-094404-B-C22).

She also did a total of **240 hours of teaching** to Vet students on Reproduction in different species. She co-mentored 2 final projects (TFG) of last-year Vet students. She collaborated in workshops entitled "Come to manipulate gametes and embryos in our laboratory", centered in the Physiology of Reproduction, during the "Science Week" for 4 years.

After her PhD, she went to the **University of Tennessee** College of Veterinary Medicine (USA) as Veterinary Practitioner during 3 months, working under the supervision of Dr. Tulio Prado, diplomate of the American College of Theriogenologists. During her stay, she worked in the reproduction of different livestock species (equine, bovine, llamas, alpacas, ovine, goats) and published one paper as first author.

She started a period of research at the National Museum of Natural Science (Spanish National Research Council, CSIC), which culminated in a Juan de la Cierva contract (FJC2019-041736-I) with Dr. Eduardo Roldán, from December 2020 onwards. She currently participates in one **national project** (AEI, PID2019-108649GB-I00) and one **research contract with private company** ("Utilización de péptidos antimicrobianos en el diluyente de semen en sustitución de antibióticos convencionales", CSIC-Arquimea Research Center/Arquimea Agrotech). In 2022, a new research project will be developed with the same company ("Análisis multiparamétrico de espermatozoides de cerdo mediante coloración combinada con fluorocromos y cinética espermática").

She is integrated in the **research group**, leaded by Dr. Roldán, composed of 3 pre-doctoral students, 3 lab technicians, 1 research associate, 1 undergraduate student and 2 lab tech students. She organizes the schedule of the daily experiments, designs laboratory protocols, and leads and helps to develop each work performed in the laboratory. Last year, she co-directed 1 final year project of a Biology student, which obtained the best qualification; this student has now a contract in the laboratory. Currently, she is co-mentoring another TFG (Health Biology), and one TFM (master's in Research in Social and Health Sciences). She also participates as a **reviewer** in several scientific journals (Reproduction in Domestic Animals, Biocell, Andrologia, World Rabbit Science, Theriogenology, Revista Complutense de Ciencias Veterinarias).

Her work is oriented towards the investigation of sperm quality and aims to develop objective methods to assess the fertilizing capacity of seminal samples in different species that serves as animal models or have economic importance. She collaborates with **international researchers** from USA, Argentina, Costa Rica, and Italy.

Her main objectives include characterization and quantification of (1) chromatin compaction and role of protamines in nucleus remodeling, (2) sperm head and nucleus shape, (3) sperm kinetic parameters and influence of energy metabolism, and (4) changes during the preparation for fertilization (capacitation and acrosome exocytosis). These studies are generating scientific knowledge, and translate into several manuscripts, 3 of which are now in process of publication.

Parte C. LISTADO DE APORTACIONES MÁS RELEVANTES

C.1. Publicaciones más importantes en libros y revistas con "peer review" y conferencias

AC: Autor de correspondencia; (nº x / nº y): posición firma solicitante / total autores. Si aplica, indique el número de citaciones

- 1 **Artículo científico.** Ana Sanchez-Rodriguez; Ester Sansegundo; Maximiliano Tourmente; Eduardo Roldan. 2022. Effect of High Viscosity on Energy Metabolism and Kinematics of Spermatozoa from Three Mouse Species Incubated under Capacitating Conditions International Journal of Molecular Science. MDPI. 23, pp.15247.
- 2 **Artículo científico.** Maximiliano Tourmente; Ana Sanchez-Rodriguez; Eduardo Roldan. 2022. Effect of Motility Factors D-Penicillamine, Hypotaurine and Epinephrine on the Performance of Spermatozoa from Five Hamster Species Biology. MDPI. 11-4, pp.526.

- 3 **Artículo científico.** Rosa M García-García; María Arias-Álvarez; María Rodríguez; Ana Sanchez-Rodriguez; Nora Formoso-Rafferti; Pedro L Lorenzo; Pilar G Rebollar. (4/7). 2021. Effects of feed restriction during pregnancy on maternal reproductive outcome, foetal hepatic IGF gene expression and offspring performance in the rabbit *Animal*. Elsevier. 15-11, pp.100382. <https://doi.org/10.1016/j.animal.2021.100382>
- 4 **Artículo científico.** (AC); Maria Arias-Alvarez; Pilar Millán; Pedro L Lorenzo; Rosa M García-García; Pilar G Rebollar. (1/6). 2020. Physiological effects on rabbit sperm and reproductive response to recombinant rabbit beta nerve growth factor administered by intravaginal route in rabbit does *Theriogenology*. Elsevier. 157, pp.327-334. <https://doi.org/10.1016/j.theriogenology.2020.08.003>
- 5 **Artículo científico.** Rosa García-García; María Arias-Alvarez; Ana Sanchez-Rodriguez; Pedro L Lorenzo; Pilar G Rebollar. (3/5). 2020. Role of nerve growth factor in the reproductive physiology of female rabbits: A review *Theriogenology*. Elsevier. 150, pp.321-328. <https://doi.org/10.1016/j.theriogenology.2020.01.070>
- 6 **Artículo científico.** Ana Sanchez-Rodriguez; Sabrina Hall; Page Mauk; Jessica Klabnik-Bradford; Carlos Pinto; Shelby Hayden; Brian Whitlock; Tulio Prado. 2019. Use of a new artificial vagina without a liner reduced sperm motility in a stallion *Clinical Theriogenology*. 11-4, pp.607-610.
- 7 **Artículo científico.** Ana Sanchez-Rodriguez; Paloma Abad; Maria Arias-Alvarez; Pilar G Rebollar; Jose M Bautista; Pedro L Lorenzo; Rosa M García-García. 2019. Recombinant beta nerve growth factor production and its biological effects on sperm and ovulation in rabbits *PLOS ONE*. 14-7, pp.e0219780.
- 8 **Artículo científico.** Ana Sanchez-Rodriguez; Maria Arias-Alvarez; Patricia Timón; José M. Bautista; Pilar G Rebollar; Pedro L Lorenzo; Rosa M García-García. 2018. Characterization of β -Nerve Growth Factor-TrkA system in male reproductive tract of rabbit and the relationship between β -NGF and testosterone levels with seminal quality during sexual maturation *Theriogenology*. Elsevier. 126, pp.206-213.
- 9 **Artículo científico.** (AC); Maria Arias-Alvarez; Pilar G Rebollar; Jose M Bautista; Pedro L Lorenzo; Rosa M Garcia-Garcia. (1/6). 2018. Gene expression and immunolocalization of low-affinity neurotrophin receptor (p75) in rabbit male reproductive tract during sexual maturation *Reproduction in Domestic Animals*. 53-Suppl. 2, pp.62-65.
- 10 **Artículo científico.** Rosa M Garcia-Garcia; Maria del Mar Masdeu; Ana Sanchez-Rodriguez; et al;. 2018. B-nerve growth factor identification in male rabbit genital tract and seminal plasma and its role in ovulation induction in rabbit does *Italian Journal of Animal Science*. 17-2, pp.442-453.

C.2. Congresos

- 1 Ana Sanchez-Rodriguez; Maria Arias-Álvarez; Pilar Millán; Pedro L Lorenzo; Rosa M García-García; Pilar G Rebollar. Dose-response study of recombinant rabbit β -Nerve Growth Factor in sperm and ovulation induction of rabbit does.. 15th International Conference of AERA (Asociación Española de Reproducción Animal).. AERA. 2019. España.
- 2 Ana Sanchez-Rodriguez; Maria Arias-Alvarez; Pilar G Rebollar; Jose M Bautista; Pedro L Lorenzo; Rosa M Garcia-Garcia. Gene expression and immunolocalization of B-NGF low-affinity receptor (p75) in rabbit male reproductive tract. 22nd Annual Conference of ESDAR (Sociedad Europea de Reproducción en Animales Domésticos). ESDAR. 2018. España. Participativo - Ponencia oral (comunicación oral). Congreso.
- 3 Ana Sanchez-Rodriguez; Luna Gutiérrez-Cepeda; Aitor Fernández-Novó; Consuelo Serres. Evaluation of the Effect of Seminal Plasma in the Post Insemination Uterine Inflammatory Dynamic by Power Doppler Ultrasonography and Low Volume Lavage in the Mare. XII International Symposium on Equine Reproduction. ISER. 2018. Reino Unido.
- 4 Ana Sanchez-Rodriguez; Maria Arias-Alvarez; Pilar G Rebollar; Pedro L Lorenzo; Rosa M Garcia-Garcia. Immunolocalization of β -NGF in male reproductive tract and NGF levels in serum and seminal plasma at puberty and adulthood in rabbit. 44th IETS Annual Conference (Sociedad Internacional de Transferencia Embrionaria). IETS. 2018. Tailandia. Participativo - Póster. Congreso.

- 5 Ana Sanchez-Rodriguez; Pedro L Lorenzo; Maria Arias-Alvarez; Pilar G Rebollar; Rosa M Garcia-Garcia. Immunolocation of nerve growth factor high-affinity receptor (TrkA) in rabbit male tract. 14th International Conference of AERA (Asociación Española de Reproducción Animal). AERA. 2017. España. Participativo - Póster. Congreso.
- 6 Maria J Sánchez-Calabuig; Raúl Fernández-González; Ángela Patricia López-Cardona; Ana Sanchez-Rodriguez; Inmaculada Torrego Arranz; Ricardo Laguna; Consuelo Serres; Alfonso Gutiérrez-Adán. Strategies to optimize Equine Intracitopasmic Sperm Injection Embryo Production. 18th International Congress of Animal Reproduction (ICAR). ICAR. 2016. Francia. Congreso.

C.3. Proyectos o líneas de investigación

- 1 **Proyecto**. Protaminas: Evolución y papel en la protección del ADN espermático, formación de la cabeza y funcionamiento celular (PROTASPERM). Ministerio de Ciencia e Innovación. Investigación. Eduardo Roldán Schuth. (Museo Nacional de Ciencias Naturales). 01/06/2020-01/06/2023. 194.810 €.
- 2 **Proyecto**. Efecto de la restricción alimentaria materna en la respuesta ovárica y embrionaria y del papel del factor de crecimiento nervioso (NGF) tras su caracterización en el conejo. ministerio de Economía y Competitividad. Rosa María García García. (Facultad de Veterinaria). 01/01/2016-31/12/2018. 48.400 €.
- 3 **Proyecto**. Tecnologías de manejo, nutrición y genética para optimizar la producción de alimentos de origen animal característicos de la dieta mediterránea (MEDGAN). 2015-2018. 825.100 €.
- 4 **Proyecto**. Digitalización de documentos para generar recursos educativos virtuales. Universidad Complutense de Madrid. Luis Revuelta Rueda. (Facultad de Veterinaria). 01/09/2016-30/03/2017. 570 €.
- 5 **Contrato**. NUEVAS TECNOLOGÍAS DE PRESELECCIÓN DE SEXO MEDIANTE SEPARACIÓN BIOQUÍMICA DE ESPERMATOZOIDES X E Y Eduardo Roldán Schuth. 04/01/2022-04/11/2023.
- 6 **Contrato**. NUEVO DILUYENTE DE SEMEN CON PEPTIDOS ANTIMICROBIANOS EN SUSTITUCIÓN DE ANTIBIÓTICOS Eduardo Roldán Schuth. 04/01/2022-04/11/2023.
- 7 **Contrato**. UTILIZACIÓN DE PÉPTIDOS ANTIMICROBIANOS EN EL DILUYENTE DE SEMEN EN SUSTITUCIÓN DE ANTIBIÓTICOS CONVENCIONALES Eduardo Roldán Schuth. 28/04/2021-28/08/2022.