MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

AGENCIA ESTATAL DE INVESTIGACIÓN

**CURRICULUM VITAE**

***IMPORTANT – The Curriculum Vitae cannot exceed 4 pages. Instructions to fill this document are available in the website.***

| **CV date** | 17/06/2025 |
|---|---|

**Part A. PERSONAL INFORMATION**

| | | | |
|---|---|---|---|
| Firstname | Carmen Jesica | | |
| Familyname | Venegas Maldonado | | |
| Gender (*) | Female | Birth date (dd/mm/yyyy) | |
| e-mail | cvenegas@ugr.es | URL Web | |
| Open Researcher and Contributor ID (ORCID) (*) | | 0000-0002-8902-4986 | |

**A.1. Current position**

| | | | | |
|---|---|---|---|---|
| Position | Ramón y Cajal Researcher | | | |
| Initial date | 01/09/2024 | | | |
| Institution | Universityof Granada | | | |
| Department/Center | Physiology | BiomedicalResearch Center | | |
| Country | Spain | | Teleph. number | |
| Key words | | | | |

**A.2. Previous positions (research activity interruptions, see call)**

| Period | Position/Institution/Country/Interruption cause |
|---|---|
| 01/01/2021-30/04/2024 | Research scientist/University of Luxembourg /Luxembourg |
| 29/12/2019-17/09/2020 | Maternal/Parental leave |
| 01/05/2019-31/12/2020 | Postdoc/University of Luxembourg/Luxembourg |
| 01/05/2014-30/04/2019 | Postdoc/University of Bonn /Germany |
| 20/06/2013-20/09/2013 | Postdoc internship/University of Bonn/Germany |
| 23/09/2008-21/12/2012 | PhD student/University of Granada/Spain |

**A.3. Education**

| PhD, Licensed, Graduate | University/Country | Year |
|---|---|---|
| MScAging and Frailty | Universidad Nacional de Educación a Distancia (UNED)/Spain | 2014 |
| PhD Biomedicine | Universityof Granada/Spain | 2012 |
| MScBiotechnology | Universityof Granada/Spain | 2008 |
| BScBiochemistry | Universityof Granada/Spain | 2006 |

**Part B. CV SUMMARY**

Dr. Venegas is a researcher at University of Granada, with more than 15 years of experience in both national and international institutions. She has provided a valuable contribution to the research areas in which she has worked with 26 scientific papers, 20 communications in national and international congresses and 2 patents.

During her PhD, under the supervision of Prof. Acuña *(University of Granada)*, her scientific interest focused on distribution and regulation of extrapineal melatonin, and its action mediated by membrane and nuclear receptors. In collaboration with Prof. Reiter, Dr. Venegas showed the mechanisms involved in regulation of extrapineal melatonin levels and its daily distribution, supporting the key role of intracellular receptors and dose-dependent effects. As a result of this work, ***the paper "Extrapineal melatonin: analysis of its subcellular distribution and daily***

***fluctuations" was awarded the best scientific paper of the University of Granada***. These results were instrumental to define the doses needed to treat patients with different inflammatory diseases, leading to the development of ***"Durable preparation of an injectable of melatonin exhibiting long-term stability" patent***, in which Dr. Venegas actively participated. In parallel, she contributed to other research areas related to nuclear-mitochondrial inflammatory pathways, including melatonin treatment of Parkinson disease (PD), ageing, mucositis and sepsis.

Afterwards, she worked as postdoctoral researcher in the *Department of Neurodegenerative diseases and Gerontopsychiatry*, University of Bonn, led by Prof. Heneka. Her research interest focused on neuroinflammatory process involved in neurodegenerative diseases, particularly the role of ASC specks in the aggregation and spreading of beta amyloid (Ab) peptides. In close collaboration with Prof. Latz and Prof. Walter, Dr. Venegas reported that ASC specks released from microglia are the key cofactor that promotes the progression of the Ab plaque formation. Moreover, a specific anti-ASC speck antibody was used to reduce the Ab aggregation. The data generated ***the patent "Novel means and methods for treating neurodegenerative diseases",*** in which Dr. Venegas is author. In collaboration with Prof. Buee (University of Lille), she also evaluated the role of NLRP3 inflammasome in the aggregation and hyperphosphorylation of Tau. **Data obtained from both projects were published in Nature journal**, followed by different national and international media coverage. At clinical level, results obtained from both studies open a pharmacological target to treat AD and other tauopathies.

During her second postdoctoral training in the *Molecular and Functional Neurobiology group* (University of Luxembourg), led by Prof. Grünewald, her research topic focused on the activation of the immune system in PD. From December 2019 to September 2020, she interrupted her research activity due to the **maternity leave**. In 2020, she was funded by the "Fonds National de la Recherche" as Junior PI. From 2021, she was the **head of the project "Synergistic effect of protein aggregation and mitochondrial dysfunction on inflammation in neurodegenerative diseases".** The project was funded with 632.000 € and included funded to contract a Research specialist under the supervision of Dr. Venegas. The data obtained showed that □-synuclein accumulation over the time induced functional differences on the neuronal mitochondria and as well revealed a shift from oxidative phosphorylation towards glycolysis in PD. This study will provide novel insights into the disease pathways of PD there by offering new entry points for neuroprotective therapies.

In 2023, she was **awarded the "Ramon y Cajal" Grant** and she started her position in September 2024 at the University of Granada. Currently, she is establishing her research line focused on the search for mechanisms and therapeutical strategies to treat AD.

Dr. Venegas´ scientific contributions have high relevance, providing new information about neuroinflammatory diseases and offering potential therapeutical targets for their treatment. Because of the significant results obtained, two research patents have been elaborated. The data obtained have been communicated in national and international congresses and published in journal of first quartile. During her career, Dr. Venegas gained a wide range of experimental skills, including the use of different animal and cells models related to neuroinflammatory diseases and laboratory techniques. Moreover, she has attended leadership trainings. These tools, in combination with the acquired ability of working with people from different laboratories and nationalities, manage the time and solve the problems, allowed her to achieve the aims proposed in each project. Her scientific work has been accompanied by teaching activities, student supervision and the evaluation of PhD or master thesis. Moreover, she is reviewing editor in Frontiers in Aging Neuroscience.

## Part C. RELEVANT MERITS

*Theymayinclude publications, data, software, contracts orindustrial products, clinical developments, conference, publications, etc. Ifthese contributions haveDOI, pleaseincludeit*

## C.1. Publications

*Must beincludethecorrespondingauthor, thepositionoccupiedbytheapplicantresearcher)*


**1.**Heneka MT (CA),van derFlier WM, Jessen F ,… (55/71)Neuroinfalmation in Alzheimer's Disease. Nat Rev Immunol, 2025; 2025 May;25(5):321-352.doi: 10.1038/s41577-024-01104-7

**2.**Talavera-Andujar B, Mary A, **Venegas C**, Cheng T, Zaslavsky L, Bolton EE, Heneka MT, Schymanki E (CA) (3/8). Can Small Molecules Provide Clues on Disease Progression in Cerebrospinal Fluid from Mild Cognitive Impairment and Alzheimer's Disease Patients? Environ Sci Technol. 2024; 58(9):4181-4192. doi: 10.1021/acs.est.3c10490 **(Open access)**

**3.**Badanjak K, Mulica P, Smajic S,…, Grünewald A (CA) (13/14). iPSCs-derived microglia as a model to study inflammation in idiopathic Parkinson's Disease. Front Cell Dev Biol, 2021; 9:740758. doi: 10.3389/fcell.2021.740758 **(Open access)**

**4**.**Venegas C**, Heneka MT(CA) (1/2). Inflammasome-mediated innate immunity in Alzheimer's disease. *FASEB J*., 2019; 33(12):13075-13084. doi: 10.1096/fj.201900439 ***(Open access)***

**5**. Ising C, **Venegas C**, Zhang S,…Heneka MT(CA) (2/22). NLRP3 inflammasome activation drives tau pathology. Nature, 2019; 575(7784):669-673. doi: 10.1038/s41586-019-1769-z.

**6**. **Venegas C**, Kumar S, Franklin SB,…Heneka MT (CA)(1/19). Microglia-derived ASC specks cross-seed amyloid-β in Alzheimer's disease. Nature, 2017; 552(7685):355-361. doi: 10.1038/nature25158.

**7**.García JA, Volt H,**Venegas C**,Doerrier C, Escames G, López LC,Acuña-Castroviejo D (CA) (3/7). Disruption of the NF/ΚB/NLRP3 connection by melatonin requires retinoid-related orphan receptor-α and blocks the septic response in mice. *FASEB J*. 2015;29(9):3863-75. doi: 10.1096/fj.15-273656***(Open access)***

**8**. **Venegas C**, García JA, DoerrierC,Volt H, Escames G, López LC, Reiter RJ,Acuña-Castroviejo D (CA) (1/8). Analysis of the daily changes of melatonin receptors in the rat liver.*J Pineal Res*. 2013; 54(3):313-21.doi: 10.1111/jpi.12019

**9**.**Venegas C**, García JA, Escames G,…Acuña-Castroviejo D (CA) (1/10). Extrapineal melatonin: analysis of its cellular distribution *J Pineal Res*., 2012;52(2):217-27. doi: 10.1111/j.1600-079X.2011.00931.x.

**10**.Chahbouni M, Escames G, **Venegas C**, …, Acuña-Castroviejo D (CA)(3/9). Melatonin treatment normalizes plasma pro-inflammatory cytokines and nitrosative/oxidative stress in patients suffering from Duchenne muscular dystrophy. *J Pineal Res.*, 2010;48(3):282-289. doi: 10.1111/j.1600-079X.2010.00752.x.


## C.2. Congress

1. **Venegas C**, Mulica P, Hezzaz S, Händler K, Gallucci L, Delcambre S, Pereira SL, Antony PMA, Krüger R, Skupin, A, Spielmann M, Grunewald A. a-syn disrupts mitocondrial metabolism in neurons derived from Parkinson´s disease patients. Alzheimer´s and Parkinson´s disease conference, 2024, Lisbon (Portugal). Poster presentation

2. **Venegas C**, Mulica P, Arns T, Kyriakis D, Delcambre S, Pereira SL, Antony PMA, Krüger R, Skupin A, Grünewald A. Interplay of α-synuclein aggregation and mitochondrial function in PD. World Parkinson Congress, 2023, Barcelona (Spain). Poster presentation

## C.3. Research projects

**1. Title:**Synergistic effect of protein aggregation and mitochondrial dysfunction in neurodegenerative diseases. **Ref:** C20/BM/14548100. **Funding institution:** Luxembourg National Research Fund. **Principal investigator: Carmen Jesica Venegas Maldonado. Affiliation:** University of Luxembourg. **Start-End date:** 1.01.2021-30.04.2024. **Total amount:** 632.000€**. Participation:** PI.

**2. Title:** ProtectMove: Reduced Penetrance of Movement Disorders.**Ref:** FOR 2488,6 GR 3731/5-1; SE 2608/2-1; KO 2250/7-1- FNR11250962**. Funding institution:**German Research

Foundation and Luxembourg National Research Fund. **Principal investigator:**Christine Klein. **Affiliation:** University of Lübeck and University of Luxembourg. **Start-End date:** 1.07.2020-30.06.2024. **Total amount:** 4.800.000€**. Participation:** Researcher.

**3. Title:** Model-IPD. **Ref:** FNR9631103. **Funding institution:** Luxembourg National Research Fund. **Principal investigator:** Anne Grünewald. **Affiliation:** University of Luxembourg.**Start-End date:** 1.01.2016- 31.12.2022.**Total amount:** 1.500.000 €.**Participation:** Researcher.

**4. Title:** Transition from Acute to Chronic Neuroinflammation. **Ref:** JTC2014.**Funding institution:** Neuron Era-Net.European Research Projects on Neuroinflammation. **Principal investigator:** Michael T Heneka. **Affiliation:** University of Bonn. **Start-End date:** 01.05.2015-31.12.2018. **Total amount:** 1.015.000 €. **Participation:** Researcher.

**5. Title:** Consecuencias moleculares y fisiopatológicas de la deficiencia de coenzima Q: evaluación de estrategias**. Ref:** P10-CTS-6133 **Funding institution:** Ministerio de Ciencia e Innovación**. Principal investigator:** Luis Carlos López**. Affiliation:** University of Granada**. Start-End date:** 1.01.2011-31.12.2014.**Total amount:** 234.247€. **Participation:** Researcher.

**6. Title:** Modelos de ratón con deficiencia primaria en ubiquinona: caracterización y aproximaciones terapéuticas.**Ref:** SAF2009-08315.**Fundinginstitution:** Ministerio de Ciencia e Innovación.**Principal investigator:** Luis Carlos López**. Affiliation:** University of Granada. **Start-End date:** 1.01.2010-31.12.2012**. Total amount:** 121.000 €**. Participation:** Researcher.

**7. Title:** Red temática de Investigación cooperativa en envejecimiento y fragilidad (RETICEF).**Ref:** RD06/0013/0008.**Funding institution:** Instituto de Salud Carlos III.**Principal investigator:**Darío Acuña. **Afiliation:** University of Granada.**Start-End date:** 1.01.2007-31.12.2012.**Total amount:** 411.370 €**. Participation:** Researcher**.**

**8. Title:** Mecanismo de acción de la melatonina. **Ref:** CTS101-2007.**Funding institution:** PAI (Consejería de Innovación, Ciencia y Empresa, Junta de Andalucía). **Principal investigator**: Darío Acuña. **Affiliation:** University of Granada.**Start-End date:** 01.01.2007-31.12.2008.**Total amount:** 14.362.48 €. **Participation:** Researcher.

**9. Title:** Mecanismo de acción de la melatonina. **Ref:** CTS101-2006.**Funding institution:** PAI (Consejería de Innovación, Ciencia y Empresa, Junta de Andalucía). **Principal investigator:** Darío Acuña. **Affiliation:** University of Granada.**Start-End date:** 01.01.2006-31.12.2007. **Total amount:** 16.942,86 €**. Participation:** Researcher.

**10. Title:** Mecanismo de acción de la melatonina. **Ref:** CTS101-2005. **Funding institution:** PAI (Consejería de Innovación, Ciencia y Empresa, Junta de Andalucía). **Principal investigator:** Darío Acuña**. Affiliation**: University of Granada. **Start-End date:** 01.01.2005-31.12.2006. **Total amount:** 14.790,73 €. **Participation:** Researcher**.**

**C.4. Contracts, technological or transfer merits**

**1. Authors:** Michael T. Heneka, Eicke Latz, **Carmen Venegas**, Jochen Walter, Sathish Kumar. **Reference:** WO2019122270. **Title:** Novel means and methods for treating neurodegenerative diseases. **Priority countries:**European Union, China, US, Japan, India, Australia, Canada. **Date:** 27.06.2019. **Holding** institution**: University of Bonn.**
**Link:**https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2019122270

**2. Authors:** Acuña-Castroviejo D, Escames G, Bueno-Laraño P, Mansilla A, Ferrón JA, Hernández JJ, Calleja MA, González D, Comino A, Olmedo C, **Venegas C**. **Reference:** WO2015144965A1. **Title:** Durable preparation of an injectable of melatonin exhibiting long-term stability. **Priority countries:** European Union, US, China. **Date:** 27.03.2015. **Holding institution:** University of Granada-FIBAO. **Link:**https://patents.google.com/patent/WO2015144965A1/en