

Curriculum Vitae

Juan Aguilar, PhD

Principal Investigator

Experimental Neurophysiology and Neuronal Circuits Group

(Lab i1-05; Office i1-10)

Hospital Nacional de Paraplégicos, Toledo, Spain

ORCID: **0000-0002-8070-3923**

SCOPUS ID: **23468570400**

ACADEMIC DEGREES:

Ph.D. in Biology (Neuroscience Program), University of Santiago de Compostela (Spain). 2002.

Degree in Biology. University of Seville. (Seville, Spain). 1996

RESEARCH AND PROFESSIONAL EXPERIENCE.

- 1998-2002. **Predoctoral fellowship**. Fac. Medicine. Univ. Santiago de Compostela. (Spain). Predoctoral Program of Spanish Ministry for Education and Culture.
- 2003-2005. **Postdoctoral fellowship**. College of Medicine. Drexel University. Philadelphia (USA). Postdoctoral Program of Spanish Ministry for Education and Culture.
- 2006-2008. **Researcher of National Health System**. Instituto de Salud Carlos III (Miguel Servet program). National Hospital for Paraplegics. SESCAM. Toledo. Spain..
- 2009-nowadays. **Group Leader**. Experimental Neurophysiology Group. National Hospital for Paraplegics. SESCAM. Toledo. Spain..
- Oct-2015 to Feb-2016. **Visiting Researcher** in: Laboratory of Dr. Araque. Department of Neuroscience. University of Minnesota (MN, USA). Granted by Instituto de Salud Carlos III. Spanish Ministry of Economy. Government of Spain.
- Current position: **Group Leader** of the Experimental Neurophysiology and Neuronal Circuits lab. National Hospital for Paraplegics. SESCAM. Toledo. Spain.

MAIN RESEARCH LINES

- 1) Physiological basis of sensory processing in different levels of the somatosensory system: dorsal column nuclei, thalamus and cortex.
- 2) Study of functional reorganization of brain structures as thalamus and cortex after a spinal cord injury.

MAIN COLLABORATIONS:

- .- **Dr. Oliviero.** FENNSI Group. National Hospital for Paraplegics, Toledo, (Spain). Non- Invasive techniques of neuromodulation in humans.
- .- **Dr. Abad-Rodríguez.** Group of Membrane Biology and Axonal Repair. National Hospital for Paraplegics, Toledo, (Spain). Physiological role of Galectin-4 in cortex and hippocampus.
- .- **Dr. Araque.** Dpt. Neuroscience. University of Minnesota (MN,USA.) Interaction Astrocyte-neuron in the somatosensory cortex.
- .- **Dr. Rivadulla and Dr. Cudeiro.** Department of Medicine. University of Coruña. Spain. Use of Static magnetic fields (tSMS) in animal models of epilepsy.

SCIENTIFIC PUBLICATIONS:

2020:

50) Soto-Leon V, Alonso-Bonilla C, Peinado-Palomino D, Torres-Pareja M, Mendiza-Laiz N, Mordillo-Mateos L, Onate-Figuerez A, Arias P, **Aguilar J**, Oliviero A. (2020). Effects of fatigue induced by repetitive movements and isometric tasks on reaction time. *Human Movement Science* 73:102679. DOI:10.1016/j.humov.2020.102679 (IF: 2.096)

49) Lines J, Martin ED, Kofuji P, **Aguilar J***, Araque* A. (2020). Astrocytes modulate sensory-evoked neuronal network activity. *Nature Communications* 11: 3689. DOI: 10.1038/s4167-020-17536-3 (IF:12.121 ;D1) (*) Corr Author.

48) Hernando A, Galvez F, García MA, Soto-Leon V, Alonso-Bonilla C, **Aguilar J**, Oliviero A. (2020). Effects of moderate static magnetic field on neural systems is a non-invasive mechanical stimulation of the brain possible theoretically?. *Frontiers in Neuroscience* 14:419 DOI: 10.3389/fnins.2020.00419. IF: 3.707 Q2

2019:

47) Fernández-López E, Alonso-Calviño E, Humanes-Varela D, Foffani G*, **Aguilar J***. (2019). Slow-wave activity homeostasis in the somatosensory cortex after spinal cord injury. *Experimental Neurology*. 322:113035. doi: 10.1016/j.expneurol.2019.113035. IF: 4.56 (*) Corr Author.

46) Mordillo-Mateos L, Soto-León V, Torres-Pareja M, Peinado-Palomino D, Mendoza-Laiz N, Alonso-bonilla C, Dileone M, Rotondi M, **Aguilar J**, Oliviero A. (2019). Fatigue in multiple sclerosis: general and perceived fatigue does not depend on corticospinal tract dysfunction. *Frontiers in Neurology* 10:339 doi: 10.3389/fneur.2019.00339. IF: 2.635

45) Durkee CA, Covelo A, Lines J, Kofuji P, **Aguilar J**, Araque A. (2019). Gi/o proteina-coupled receptors inhibit neurons but activate astrocytes and stimulate gliotransmission. *Glia* 67:1076-1093 doi: 10.1002/glia.23589 IF: 5.829

2018:

44) Jutzeler CR, Streijger F, **Aguilar J**, Shortt K, Manouchehri N, Okon E, Hupp M, Curt A, Kwon BK, Kramer JLK. (2018). Sensorymotor plasticity after spinal cord injury: a longitudinal and translational study. *Annals of Clinical and Translational Neurology*. 6(1):68-82 doi:10.1002/acn3.679 IF: 4.656

43) Rivadulla C*, **Aguilar J***, Coletti M, Aguila J, Prieto S, Cudeiro J. (2018). Static magnetic fields reduce epileptiform activity in anesthetized rat and monkey. *Scientific Reports* 8(1):15985 doi:10.1038/s41598-018-3308-x IF:4.525

42) Jiménez S, Mordillo-Mateos L, Dileone M, Campolo , Carrasco-López C, Moitinho-Ferreira F, Gallego-Izquierdo T, Siebner HR, Valls-Solé, J, **Aguilar J**, Oliviero A. (2018). Effects of patterned peripheral nerve stimulation on soleus spinal motor neuron excitability. *PLoS One* Feb 16; 13(2):e0192471 doi:10.1371/journal.pone.0912471 IF: 2.77

2017:

41) Lozano-Soto E, Soto-León V, Sabbarese S, Ruiz-Alvarez L, Sanchez-Del-Rio M, **Aguilar J**, Strange BA, Foffani G, Oliviero A. (2017) “Transcranial static magnetic field stimulation (tSMS) of the visual cortex decreases experimental photophobia”. *Cephalalgia* Jan 1:333102417736899. doi: 10.1177/0333102417736899. IF:4.438

40) Martin-Fernandez M, Jamison S, Robin LM, Zhao Z, Martin ED, **Aguilar J**, Benneyworth MA, Marsicano G, Araque A. (2017). Synapse-specific astrocyte gating of amygdala-related behavior. *Nature Neuroscience* 20(11):1540-1548 doi:10.1038/nn.4649 IF: 14.98

39) Liu C, Foffani G, Scaglione A, **Aguilar J**, Moxon KA. (2017). Adaptation of thalamic neurons provides information about the spatiotemporal context of stimulus history. *The Journal of Neuroscience* 37(41):10012-10021. doi: 10.1523/JNEUROSCI.0637-17.2017 IF: 5.998

38) Valero M, Arvekin RG, Fernandez-Lamo I; **Aguilar J**, Lopez-Pigozzi D, Brotons-Mas JR, Cid E, Tamas G, Menendez de la Prida L. 2017. Mechanisms for selective single-cell reactivation during offline sharp-wave ripples and their distortion by Fast ripples. *Neuron*. 94(6):1234-1247. doi:10.1016/j.neuron.2017.05.032 IF: 14.024

37) Mordillo-Mateos L, Dileone M, Soto-León V, Brocalero-Camacho A, Pérez-Borrego YA, Onate-Figuerez A, **Aguilar J**, Oliviero A. (2017). Effects of transcranial direct current stimulation on temperature and pain perception. *Scientific Reports*.7(1)2946 doi:10.1038/s41598-017-03173-2 IF:4.847

36) Cudeiro-Blanco J, Onate-Figuerez A, Soto-León V, Avendaño-Coy J, Mordillo-Mateos L, Brocalero-Camacho A, Esclarín A, Rotondi M, **Aguilar J**, Arias P, Oliviero A. (2017). Prevalence of Fatigue and Associated Factors in a SCI population: data from an internet based and face-to-face surveys. *Journal of Neurotrauma* epub ahead of print. Doi:10.1089/neu.2016.4950 IF:5.19

35) Humanes-Valera D, Foffani G*, Alonso-Calviño E, Fernández-López E, **Aguilar J***. (2017). “Dual cortical plasticity after spinal cord injury”. *Cerebral Cortex* 27(5):2926-2940 doi: 10.1093/cercor/bhw142. IF: 8.66 (*) Corr Author.

2016:

34) Alonso-Calviño E, Martínez-Camero I, Fernández-López F, Humanes-Valera D, Foffani G, **Aguilar J***. (2016). “Increased responses in the somatosensory thalamus immediately after spinal cord injury”. *Neurobiology of Disease* 87:39-49. doi:10.1016/j.nbd.2015.12.003 IF: 5.078 (*) Corr Author.

2015:

33) Valero M, Cid E, Averkin RG, **Aguilar J**, Sanchez-Aguilera A, Viney TJ, Gomez-Dominguez, Bellistri E & Menendez de la Prida L. (2015). “Determinants of different deep and superficial CA1 pyramidal cell dynamics during sharp-wave ripples. *Nature Neuroscience* 18(9):1281-90. doi:10.1038/nn.4074 IF:14.98

2014:

32) Humanes-Valera D, Foffani G*, **Aguilar J***. (2014). “Increased cortical responses to forepaw stimuli immediately after peripheral deafferentation of hindpaw inputs”. *Scientific Reports*. 4, 7278; DOI:10.1038/srep07278 IF: 5.08 (*) Corr Author.

31) Moxon KA, Oliviero A, **Aguilar J**, Foffani G*. (2014). "Cortical reorganization after spinal cord injury: always for good?". *Neuroscience*. Vol 283:78-94 doi: 10.1016/j.neuroscience.2014.06.056) IF: 3.33

30) Yague JG, Humanes-Valera D, Aguilar J, Foffani G. (2014). "Functional reorganization of the forepaw cortical representation immediately after thoracic spinal cord hemisections in rats". *Experimental Neurology* 257:19-24. IF:4.62

2013:

29) Humanes-Valera D, **Aguilar J**, Foffani G. (2013). "Reorganization of the intact somatosensory cortex immediately after spinal cord injury". *PlosOne*8(7):e69655. doi:10.1371/journal.pone.0069655. IF: 3.53

28) Bellistri E, **Aguilar J**, Brotons-Mas JR, Foffani G, Menéndez de la Prida L. (2013) "Basic properties of somatosensory-evoked responses in the dorsal hippocampus of the rat". *Journal of Physiology*. 591.(10) pp: 2667-2686 IF: 4.38

2012:

27) Morales-Botello ML, **Aguilar J*** and Foffani G*. (2012). "Imaging the spatio-temporal dynamics of supragranular activity in the rat somatosensory cortex in response to stimulation of the paws". *PloSOne* 7(7) e40174. doi:10.1371/journal.pone.0040174 IF: 3.53 (*) Corr Author.

26) A. Oliviero, A. Arevalo-Martin, M Rotondi, D Garcia-Ovejero, L Mordillo-Mateos, A Lozano-Sicilia, I Panyavin, L Chiovato, **J Aguilar**, G Foffani. V Di Lazzaro, E Molina-Holgado. (2012). "CB1 receptor antagonism/inverse agonism increases motor system excitability in humans". *European Neuropsychopharmacology* 22(1): 27-35 IF:3.68

2011:

25) Scaglione A, Moxon KA, **Aguilar J** and Foffani G. (2011). "Trial-to-trial variability in the responses of neurons carries information about stimulus location in the rat whisker thalamus". *PNAS* vol1108 n°36 pp:14956-14961. IF: 9.81

24) **Aguilar J***, Pulecchi F, Dilena R, Oliviero A, Priori A and Foffani G*. (2011) "Spinal direct current stimulation modulates the activity of graciles nucleus and primary somatosensory cortex in anesthetized rats". *Journal of Physiology* 589.20 pp: 4981-4996 IF: 4.38 (*) Corr Author.

23) A Oliviero, L Mordillo-Mateos, Arias P, Panyavin I, Foffani G and **Aguilar J**. (2011). "Transcranial static magnetic field stimulation (tSMS) of the human motor cortex". *Journal of Physiology* 589.20 pp:4949-4958 IF: 4.38

22) Y Perez-Borrego, V Soto-Leon, **J Aguilar**, G Foffani, M Rotondi, S Bestmann and A Oliviero. (2011). "Studying plasticity of sensory function: insight from pregnancy". *Experimental Brain Research* 209 (2): 311-316 IF: 2.17

21) Foffani G*, Humanes-Valera D, Calderón-Muñoz F, Oliviero A, **Aguilar J***. (2011) "Spinal cord injury immediately decreases anesthetic requirements in rats". *Spinal Cord*, 49:822-826 IF: 1.7 (*) Corr Author.

20) Yagüe JG, Foffani G*, **Aguilar J***. (2011). "Cortical hiperexcitability in response to preserved spinothalamic inputs immediately after spinal cord hemisection". *Experimental Neurology*. 227: 252-263 IF: 4.62 (*) Corr Author.

2010:

19) **Aguilar J***, Humanes-Valera D, Alonso-Calviño E, Yagüe JG, Moxon K, Oliviero A, Foffani G*. (2010). "Spinal cord injury immediately changes the state of the brain". *Journal of Neuroscience* 30:7528-7537. IF: 6.75 (*) Corr Author.

18) Merzagora A.C, Foffani G, Payavin I, Mordillo-Mateos L, **Aguilar J**, Onaral B, Oliviero A. (2010). "Prefrontal hemodynamics change produced by anodal direct current stimulation". *Neuroimage* 49:3204-10. IF: 6.13

2009:

17) Hirata A, **Aguilar J** and Castro-Alamancos MA. (2009). "Influence of subcortical inhibition on barrel cortex receptive fields". *Journal of Neurophysiology*. 102:437-450 IF: 3.04

16) Foffani G, Morales-Botello ML and **Aguilar J***. (2009). "Spike Timing, Spike Count, and Temporal Information for the Discrimination of Tactile Stimuli in the Rat Ventrobasal Complex". *Journal of Neuroscience* 29:5964–5973. IF:6.75 (*) Corr Author.

15) G. Miscio, E. Milano, **J. Aguilar**, G. Savia, G. Foffani, A. Mauro, L. Mordillo-Mateos, J. Romero-Ganuza, A. Oliviero. (2009). "Functional involvement of central nervous system at high altitude". *Experimental Brain Research* 194:157–162 IF: 2.17

2008:

14) **J. Aguilar***, Morales-Botello M.L. and G. Foffani. (2008). "Tactile responses of hindpaw, forepaw and whisker neurons in the thalamic ventrobasal complex of anesthetized rats". *European Journal of Neuroscience*. 27:378–387. IF. 3.67 (*) Corr Author.

13) K.A. Moxon, L.L. Hale, **J. Aguilar**, G. Foffani. (2008). "Responses of infragranular neurons in the rat primary somatosensory cortex to forepaw and hindpaw tactile stimuli". *Neuroscience* 156: 1083-1092. IF: 3.33

2007:

12) A. Oliviero, M. Rubio-Esteban, G. Foffani, **J. Aguilar**, E. Lopez-Dolado, T. Arzoz-Lezaun, J.A. Godino-Duran, J.M. Gómez-Argüelles, Y. Pérez-Borrego, F. Sebastián de la Cruz, V. Di Lazzaro. (2007). "Effects of baclofen on temperature perception in humans". *Neuroscience Research* 59:89–92. IF: 2.15

2006:

11) A. Hirata, **J. Aguilar**, and M.A. Castro-Alamancos. (2006). "Noradrenergic activation amplifies bottom-up and top-down signal-to-noise ratios in sensory thalamus". *Journal of Neuroscience*. 26:4426 – 4436. IF:6.75

2005:

10) **JR. Aguilar** and MA Castro-Alamancos. (2005). "Spatiotemporal gating of sensory inputs in thalamus during quiescent and activated states". *Journal of Neuroscience*. 25:10990 –11002. IF:6.75

2004:

9) C. Soto, **J. Aguilar**, F. Martín-Cora, C Rivadulla and A Canedo. (2004). "Intracuneate mechanisms underlying primary afferent cutaneous processing in anaesthetized cats". *European Journal of Neuroscience*. 19: 3006-3016. IF: 3.67

8) E. Sánchez, **J. Aguilar**, C. Rivadulla and A. Canedo. (2004). “The role of glycinergic interneurons in the dorsal column nuclei”. *Neurocomputing* 58-60: 1049-1055. IF: 2.01

2003:

7) **J. Aguilar**, C. Rivadulla, C. Soto, and A. Canedo. (2003). “New corticocuneate cellular mechanisms underlying the modulation of cutaneous ascending transmission in anesthetized cats”. *Journal of Neurophysiology* 89: 3328–3339. IF: 3.04

2002:

6) **J. Aguilar**, C. Soto, C. Rivadulla and A. Canedo. (2002). “The lemniscal-cuneate recurrent excitation is suppressed by strychnine and enhanced by GABAA antagonists in the anaesthetized cat”. *European Journal of Neuroscience*. 16: 1697-1704. IF: 3.6

2001:

5) J. Mariño, **J. Aguilar**, C. Soto, A. Canedo. (2001). “La corteza cerebral modula la transmisión cutánea a través de los núcleos de los cordones posteriores”. *Revista de Neurología*. 33:448-454 IF: 0.93

2000:

4) Canedo and **J. Aguilar**. (2000)
“Spatial and cortical influences exerted on cuneothalamic and thalamocortical neurons of the cat”. *European Journal of Neuroscience*. 12:2515-2533. IF: 3.67

3) A. Canedo, J. Mariño and J. Aguilar.(2000). “Lemniscal recurrent and transcortical influences on cuneate neurons”. *Neuroscience*. 97: 317-334 IF: 3.33

2) J. Mariño, A. Canedo and **J. Aguilar**.(2000). “Sensorimotor cortical influences on cuneate nucleus rhythmic activity in the anesthetized cat”. *Neuroscience* 95: 657-673 IF: 3.33

1999:

1) J. Mariño, **J. Aguilar** and A. Canedo. (1999). “Cortico-subcortical synchronization in the chloralose-anesthetized cat”. *Neuroscience*.93: 409-411. IF: 3.33

GRANTED RESEARCH PROJECTS:

As Principal Investigator

11.- Title: Deciphering the role of GABAergic neuronal populations in the cortical reorganization after spinal cord injury (GABA in CoRe). Funding Entity: Ministerio de Economía y Competitividad. Dirección General de Investigación Científica y Técnica. 2020-2023. **PI: Juan Aguilar**

10.- Title: Heterogeneidad espacial y temporal de la plasticidad neuronal provocada por una lesión medular en la corteza somatosensorial. Ref: BFU2016-0665-P. Funding Entity: Ministerio de Economía y Competitividad. Dirección General de Investigación Científica y Técnica. 2017-2019. **PI: Juan Aguilar**

9.- Title: Efectos fisiológicos inmediatos producidos por una lesión medular en el tálamo somatosensorial: Importancia de alteraciones del ritmo y sincronía. Ref: SAF2012-40109
Entity: Ministerio de Economía y Competitividad. Dirección General de Investigación Científica y Técnica. 2013-2015 **PI: Juan Aguilar**

8.- Title: Immediate cortical reorganization after spinal cord injury in rats.
Ref P120. 2011-2012 Entity: International Foundation for Research in Paraplegia.-IRP. PI: Guglielmo Foffani; **Collaborator Investigator: Juan Aguilar**

7.- Title: Estudio comparativo de los efectos que se producen sobre la actividad de la corteza somatosensorial por una lesión de nervio periférico y por una lesión medular. Ref: PI-2010/027 Hospital Nacional de Paraplégicos. 2010-2012 Entity: Fundación para la Investigación Sanitaria en Castilla-La Mancha. FISCAM. **PI: Juan Aguilar.**

6.- Title: Estudio de los cambios tempranos en las respuestas fisiológicas de las neuronas tálamo-corticales en el núcleo ventral posterior lateral de la rata después de una lesión medular. Ref:PI 08/1810 Entity: Fondo de Investigaciones Sanitarias del Instituto de Salud Carlos III. Ministerio de Ciencia e Innovación Hospital Nacional de Paraplégicos. 2009-2011. **PI: Juan Aguilar.**

5.- Title: Development and applications of signals processing techniques to extract information from complex neuronal activities. Acción Integrada España-Italia. (Ref: HI 2006-0068). 2007-2008. Entity: Ministerio de Educación y Ciencia. Gobierno de España
Investigador Principal: Guglielmo Foffani. **Collaborator Investigator: Juan Aguilar .**

4.- Title: Reorganización somatosensorial tálamo-cortical después de lesión medular en un modelo animal de rata. Ref:CP 05/00311. Contrato de Investigador del Sistema Nacional de Salud. Fondo de Investigaciones Sanitarias del Instituto de Salud Carlos III. Ministerio de Sanidad y Consumo. Hospital Nacional de Paraplégicos. 2006-2008 **PI: Juan Aguilar**

3.- Title: Reorganización cortical de la información táctil y de dolor después de lesión medular aguda y crónica en un modelo animal de rata: estudio intracelular in vivo. (ref: PI-2006/50). 2007-2009. Entity: Fundación para la Investigación Sanitaria en Castilla-La Mancha (FISCAM). **PI: Juan R Aguilar.**

2.- Title: Estudio diferencial de la reorganización de la información táctil y de dolor en la corteza somatosensorial de la rata después de lesión medular. Entity: Consejería de Sanidad de la Junta de Comunidades de Castilla-La Mancha. España: 2006-2008 Investigador Principal: Guglielmo Foffani. **Collaborator Investigator: Juan R Aguilar.**

1.- Title: Reorganización cortical de la información táctil y de dolor después de lesión medular aguda y crónica en un modelo animal de rata: estudio intracelular in vivo. 2006-2008 Entity: Fundación Mutua Madrileña Automovilista. **PI: Juan Aguilar.**

DIRECTOR OF THESIS AND MASTER IN NEUROSCIENCE

Director of PhD dissertations:

- “Basic mechanisms of somatosensory processing by the hippocampus”.
Author: Elisa Bellistri.
Universidad Pablo de Olavide. Sevilla. Nov 2012.

- “Estudios de los cambios tempranos en la actividad de la corteza somatosensorial primaria tras una lesión medular en ratas anestesiadas”.
Author: Desiré Humanes-Valera
Universidad Pablo de Olavide. Sevilla. Jul 2013

-“ Fisiología Tálamo-cortical en respuesta a estimulación somatosensorial de las extremidades en rata anestesiada”.

Author: M^a Luz Morales-Botello

Universidad Pablo de Olavide. Sevilla. Jan 2016

Supervisor of Master Degree in Neuroscience:

1.- Author: María de la Luz Morales Botello. Master en Neurociencia y Biología del Comportamiento. Universidad Pablo de Olavide. División de Neurociencias. Title: Estudio neurofisiológico-computacional del complejo ventrobasal

talámico en ratas anestesiadas. Universidad Pablo de Olavide. División de Neurociencias. June 2009.

2.- Author: Elisa Bellistri. Master en Neurociencia y Biología del Comportamiento. Universidad Pablo de Olavide. División de Neurociencias. Title: Respuestas evocadas en el hipocampo a estímulos somatosensoriales en rata anestesiada” June 2010.

3.- Author: Desiré Humanes-Valera. Master en Neurociencia y Biología del Comportamiento. Universidad Pablo de Olavide. División de Neurociencias. Title: Estudio de los cambios tempranos en la actividad de la corteza somatosensorial primaria tras una lesión medular en ratas anestesiadas”. June 2010 .

4.-Author: Irene Martínez Camero. Master en Neurociencia y Biología del Comportamiento. Universidad Pablo de Olavide. División de Neurociencias. Title: Cambios tempranos en las respuestas fisiológicas del núcleo ventral posterior lateral de la rata después de la lesión medular completa. June 2012.

TEACHING

- Associate Professor of Human Physiology. Faculty of Physiotherapy and Nursing. **University of Castilla-La Mancha**. (Spain) 2019-nowadays.

-Professor in **Universidad de A Coruña** (Spain): Máster Interuniversitario de Neurociencias. (2014-nowadays). Teaching techniques of electrophysiology (extra-cranial recordings EEG, intra-cranial extracellular recordings of single units and multi-units, intracellular recordings)

- Professor in **Universidad Pablo de Olavide** (Sevilla, Spain): Máster de Neurociencias y Biología del Comportamiento (2011-nowadays). Teaching structure and functions of the somatosensory system and Sensory-motor integration.

-Professor in **Universidad Europea de Madrid** (Spain): Máster Fisioterapia Neurológica. 2010. Teaching structure and functions of the somatosensory system and Sensory-motor integration.

-Professor in **Universidad Pablo de Olavide**, (Sevilla, Spain): X Curso Nacional de Neurociencias 2008; 2012 and 2018.

-Professor in **Universidad de A Coruña** (Spain): V Encuentros Atlánticos de Neurociencia (2006).

Invited talks and seminars cycle in the following Institutions:

- 2018-2021. Doctorate and Master Program in Neuroscience. **Faculty of Biology. University of Seville** (Spain).

- 2018. **ICORD**: International Collaboration in Repair Discoveries. Seminar Series. Vancouver (Canada). 11th September

- 2017. International Graduate School of Neuroscience at **the Ruhr University of Bochum** (Germany). September.

- 2012 and 2020. **Instituto de Neurociencias de Castilla y León (INCyL)**/ Institute of Neuroscience of Castilla and Leon. (Salamanca, Spain).
- 2012. Institute of Neuroinformatics. **ETH and University of Zürich**. (Switzerland).
- 2011. Center for Neuroprosthetics. Distinguished Lecture Series. **École Polytechnique Fédérale de Lausanne**. (Switzerland).
- 2011. Institute of Neurology. **University College de London** (London, UK)
- 2011. Dpto Neurobiology, **Yale School of Medicine. Yale University** (New Haven, USA)
- 2011. **Drexel University** (Philadelphia, USA).
- 2011. Fac de Medicine, **College of Medicine. Autonomous University of Madrid** (Spain).
- 2009. Dpto. Neuroscience **University Pablo de Olavide** (Seville. Spain).
- 2009, 2013,2014. 2019. **Dpto of Psychology. University of Seville (Spain)** .

INVITED LECTURES:

- .-XIVth Meeting of SENC (Spanish Society for Neuroscience): Symposium: “Research with animals. Impact of the new EU directive on Neuroscience”.
Lecture: “*Animals for research, from the curiosity to the necessity. A link between the basic knowledge and the cure for human illness*”. (Salamanca 2011).
- .-Brain Awareness Week (Toledo 2012): Modelos Animales para entender el cerebro humano. (Animal models for a better understanding of the human brain).
- .- Symposium: *Sensory Physiology, a window to the brain*. Title: *Functional changes in the somatosensory system after spinal cord injury*. In the Federation of European Physiological Societies and Spanish Physiological Society Scientific Congress 2012. Santiago de Compostela.
- .- Symposium: *In vivo Electrophysiology and Imaging to unveil Neural Network Functioning*. Title: The neurophysiological puzzle of the cortical plasticity after a spinal cord injury. At The Spanish Society for Neuroscience (SENC). September 2017 Alicante (Spain).

OTHER SCIENTIFIC ROLES:

- **Peer Reviewer for ANEP** (National Agency for Science Evaluation in Spain) 2010 - 2021.
- **Editorial board for Neuroscience** in Scientific Reports. Frontiers in Neuroscience
- **Reviewer for Scientific Journals:** Cerebral Cortex; Spinal Cord; PLoS One; Journal of Pain Research; Frontiers in Systems Neuroscience; Frontiers in Neuroanatomy; Neurobiology of Disease; Neuroscience; Annals of Neurology. Journal of Neuroscience Methods.
- Organizer committee**. 1st International Workshop on Brain Reorganization after Spinal Cord Injury. Toledo (Spain) 2011.
- **9th Cajal Winter Conference**. “Neuroscience today: advancing the future”. Sansenxo. Pontevedra. Spain April 2016