

## CURRICULUM VITAE



**Miguel Muñoz MD, PhD**

### **Personal Details:**

**Name:** Miguel  
**Family name:** Muñoz  
**Date of Birth:** 6<sup>th</sup> June 1957  
**Place of Birth:** Bornos, Cádiz, Spain  
**Nationality:** Spanish

### **PRESENT POSITION**

**Pediatrician** in the Pediatric Intensive Care Unit of the Virgen del Rocio University Hospital, Seville, Spain

**Researcher** at the Institute of Biomedicine of Seville (IBIS), Spain

**Leading Research** of the Research Laboratory on Neuropeptides (IBIS) Seville, Spain

### **AREA OF EXPERTISE**

Human Pathology

Neuropeptides and their receptors

Substance P, NK-1 receptor and NK-1 receptor antagonists

Medicinal chemistry

Neuroscience

Infectious disease

Oncology and Cancer Biology

Pediatrics

## **PUBLICATIONS**

**Citations 1,818** (Research Gate)

**RGS (Research Gate Score): 35,72 (92.5%)**

## **Refereed Journals**

1. Vazquez, J. **Muñoz**, M. Coveñas, R. Alterations on the Distribution of Methionine-Enkephaline-like in the cat thalamus after electroacupuncture: An immunocytochemical study. **J. Hirnforsch** 1990; 31:535-541.
2. Vazquez, J. **Muñoz**, M. Luque, M. A. Modifications of the distribution of substance P-like immunoreactivity in the cerebral basal nuclei of the cat after electroacupuncture. **Histol Histopath** 1993; 8:557-560
3. Soult JA, Macías MC, Martin C, Ponce J, **Muñoz M** et al. Meningitis por Haemophilus influenzae tipo b. Estudio de 99 casos. *An Esp Pediatr* 1994; 40:443-448.
4. Soult, J.A. **Muñoz**, M. Lopez, J.D. Romero, A. Tovaruela A. Efficacy and safety of intravenous amiodarone for short-term treatment of paroxysmal supraventricular tachycardia in children. **Pediatr Cardiol** 1995; 16:16-19.
5. **Muñoz**, M. Valderrabanos, E.S. Díaz, E. Silva, J.J. Soult, J.A. Infante, P. López J.D. and García-Curiel A. Appearance of resistance to beta-lactam antibiotics during treatment for Streptococcus pneumoniae meningitis. **J Pediatr** 1995; 127:98-99.
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7. Soult JA, **Muñoz M**, López J, et al. Tratamiento de la taquicardia paroxística supraventricular en la infancia. Experiencia con amiodarona intravenosa. **An Esp Pediatr** 1995; 42: 415-418.
8. Vazquez, J. **Muñoz, M.** and Cáceres, J.L. Modifications in the distribution of Met-enkephalin in the limbic system of the cat brain after electroacupuncture. An immunocytochemical study. **Histol Histopath** 1995; 10:577-582.
9. López JD, **Muñoz M**, Soult JA et al. Eficacia y seguridad del uso de tramadol en niños. Estudio prospectivo. **Rev Soc Esp Dolor** 1996; 3:78-85
10. **Muñoz, M** Gomez, A. Soult, J.A. Marquez, C. Lopez, J.D. Cervera, A. Cano, M. Seizures caused by chloral hydrate sedative doses. **J Pediatr** 1997; 131:787-788.
11. JA Soult, **M Muñoz**, M Barrera, JD Lopez, A Tovaruela. Aumento en la incidencia de enfermedad meningocócica por serogrupo C en la provincia de Sevilla. **An Esp Pediatr** 1997; 47:659- 660.
12. Lopez, JA Cano, J. **Muñoz, M.** Cano, M. Soult, J.A. Andrés, A. Montilla, M. Barrera M. Massive bronco aspiration of barium sulphate during the radiological study upper digestive tract. **Pediatr Pulmonol** 1997; 24:126- 127
13. Vázquez, J. **Muñoz, M.** Garcia, J.C. Modifications in the distribution of met-enkephalin in the pons of the cat, following the intravenous administration of clonidine: an immunocytochemical experimental study. **Histol Histopathol** 1998; 13:619-26.
14. JA.Soult, M Montilla, **M Muñoz**, JD Lopez, M Cano, M Carranza. Consideraciones clínico-diagnósticas del pseudoquiste pancreático en la infancia. **Rev Esp Pediatr** 1998; 56:282-285.
15. Vazquez, J. Coveñas, R. **Muñoz, M.** Garcia, J.A. and Victoria A. Modifications in the distribution of met-enkephalin in the spinal cord of the cat, after

- administration of clonidine". An immunocytochemical study. **Histol Histopathol** 1998; 13:955-959.
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  17. JA Sout, **M Muñoz**, JL López, A Rodríguez, A Romero, A Tovaruela. Continúa aumentando la incidencia de enfermedad meningocócica por serogrupo C ¿Debemos tomar la decisión de vacunar? **An Esp Pediatr** 2000; 53:75-76.
  18. JD López Castilla, JA Sout, **M Muñoz**, et al. Uso de Imipenem/cilastatina en niños con infecciones bacterianas graves. **Acta Pediatr Esp** 2000; 58:443-446.
  19. **M Muñoz**, JA Sout, A Romero, A Tovaruela. Parada cardiorespiratoria. RCP básica y avanzada en pediatría. Puesta al día en **Urgencias Emergencias y Catástrofes** 2000; 1:251-57.
  20. López-Castilla, J.D. Díaz Fernández, F. Sout, J.A. **Muñoz, M.** Barriga R. Primary leptomenigeal melanoma in a child. **Pediatr Neurology** 2001; 24:390-392.
  21. JA Sout, **M Muñoz**, JL López. Enfermedad meningocica: nuevas estrategias de prevención. **An Esp Pediatr** 2001; 54:65-68.
  22. JA Sout, C Rangel, **M Muñoz**, JS Parrilla, F Diaz, JL López y A Tovaruela. Meningitis neumococica: características, epidemiológicas, clínicas y bacteriológicas. **An Esp Pediatr** 2001; 55: 315-320.
  23. F Díaz, **M Muñoz**, JA Sout, I Nieto, JD López. Varicela letal en niño inmunocompetente. **An Esp Pediatr** 2001; 55: 143-144.

24. JA Soult, V García, MJ Sánchez, **M Muñoz**, JD López, A Tovaruela. Síndrome de activación del macrófago. Un reto diagnóstico. **An Esp Pediatr** 2002; 56:165-167.
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26. **Miguel Muñoz**, Catalina Márquez, Macarena Taguas-Casaño, Juan A. Soult, José D. López-Castilla and Ana M. Álvarez-Silván. Resistance to a beta-lactam antibiotic appearing during therapy for enterobacter cloacae sepsis in a child. **Med Pediatr Oncology** 2003; 40:62-63.
27. JA Soult, **M Muñoz**, VM Navas. Infección neumocócica en la infancia. **Pediátrika** 2003; 23:205-218.
28. JA Soult y M Muñoz. La bacteriemia oculta persé, no es una forma de enfermedad invasora. **An Esp Pediatr** 2003; 58:502-503.
29. J Ramos, JD Lopez, M Atienza, J Bautista, A Ramos, **M Muñoz**, M Carranza, JA Soult. Concentrado de proteína C en el tratamiento de la sepsis grave en pediatría. **Farm Hosp.** (Madrid) 2003; 27:391-395.
30. JA Soult, **M Muñoz**, VM Navas, A Vazquez, A Varona, JD López. Sepsis recurrente por *streptococcus pneumoniae* en niña con asplenia y déficit de C3. **Rev Esp Pediatr** 2003; 59: 537-539.
31. Perez Gorricho B, Zaardiel Ferrero J y **Grupo de Estudio** de Meropenem en Pediatría. Meropenem en el tratamiento empirico de infecciones moderadas o graves en niños hospitalizados de 3 a 12 meses y de 1 a 14 años de edad. **Rev Esp Quimioterap** 2004; 17: 341-349.
32. **Muñoz, M.** Pérez, A. Coveñas, R. Rosso, M, and Castro, E. Antitumoral action of L-733,060 on neuroblastoma and glioma cell lines. **Archives Italiennes de Biologie** 2004; 142:105-12.

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35. JA Soutl, **M Muñoz**, JD López, I Sánchez, VM Navas, A Romero. Efecto secundario grave tras la administración de adenosina en un niño. **Rev Esp Pediatr** 2004; 60:160-161.
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37. JD González Rodríguez, VM Navas López, D Canalejo González, JA Soutl Rubio, **M Muñoz Sáez**. Características epidemiológicas de las sepsis y meningitis bacterianas. **Vox Pediatr** 2004; 12:7-12.
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40. JA Soutl y **M Muñoz**. Enfermedad meningocócica invasora. **An Esp Pediatr** 2005; 62:297-303.

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42. **Muñoz, M.** Rosso, M. Coveñas, R. The NK-1 receptor is involved in the antitumoural action of L-733,060 and in the mitogenic action of substance P on human pancreatic cancer cell lines. **Lett in Drug Des Discovery** 2006; 3: 323-9.
43. **M Muñoz,** J.A. Soult. Guía práctica de utilización de antibióticos. **Pediatr Integral** 2006; 10: 65-75.
44. J.A. Soult, **M Muñoz.** Sepsis y meningitis bacterianas. **Pediatr Integral** 2006; 10: 179-190.
45. **Muñoz M,** Rosso M, Coveñas R, Montero I, González-Moles MA, Robles MJ. Neurokinin-1 receptors located in human retinoblastoma cell lines: antitumor action of its antagonists, L-732,138. **Investigative Ophthalmology & Visual Science** 2007; 48: 2775-2781.
46. Marquez-de-Aracena R, Montero-de-Espinosa I, **Muñoz M,** Pereira G. Subconjunctival application of plasma platelet concentrate in the treatment of ocular burns. Preliminary results. **Arch Soc Esp Oftalmol** 2007; 82:475-81.
47. Rosso M, Rojas P, Garcia E, Marquez J, Losada A, **Muñoz M.** *Kluyvera* meningitis in a newborn. **Pediatr Infect Dis J** 2007; 26: 1070-1071.
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52. Esteban F, González-Moles MA, Castro D, Martín-Jaén MM, Redondo M, Ruiz-Ávila I, Rosso M, **Muñoz M**. Expression of Substance P and Neurokinin-1-receptor in Laryngeal Cancer: Linking Chronic Inflammation to Cancer Promotion and Progression. **Histopathology** 2009; 54:258-60.
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substance P and the NK-1 receptor could be involved in regional block and breast cancer recurrence. **Breast Cancer Res Treat** 2010; 122:601-603

**58. Muñoz M**, Pavon A, Rosso M, Perez A, Salinas-Martín M V, Carranza A, González A. Immunolocalization of NK-1 receptor and substance P in human normal placenta. **Placenta** 2010; 31: 649-651

**59. Miguel Muñoz**, Marisa Rosso, Ana González-Ortega and Rafael Coveñas. The NK-1 Receptor Antagonist L-732,138 Induces Apoptosis and Counteracts Substance P-Related Mitogenesis in Human Melanoma Cell Lines. **Cancers** 2010; 2: 611-623.

**60. Muñoz M**, Rosso M, Robles-Frias MJ, Salinas-Martín M V, Rosso R, González A and Coveñas R. The NK-1 receptor is expressed in human melanoma and is involved in the antitumor action of the NK-1 receptor antagonist aprepitant on melanoma cell lines. **Lab Investigation** 2010; 90: 1259-1269

**61. Miguel Muñoz**, Marisa Rosso, Ana González-Ortega, Javier Saenz and Rafael Coveñas. The broad-spectrum antitumor action of cyclosporin A is due to its tachykinin receptor antagonist pharmacological profile. **Peptides** 2010; 31: 1643-8.

**62. Miguel Muñoz** and Rafael Coveñas NK-1 receptor: a new promising target in treatment of cancer. **Discovery Medicine** 2010; 10: 305-313

**63. M Muñoz Saez**, J.A. Souto Rubio. Guía práctica de utilización de Antimicrobianos. **Pediatr Integral** 2010; 14: 111-123.

**64. J.A. Souto Rubio**, **M Muñoz Saez**. Sepsis y meningitis bacterianas. **Pediatr Integral** 2010; 14: 139-146.

**65. Miguel Muñoz**, Marisa Rosso and Rafael Coveñas. The NK-1 Receptor: A New Target in Cancer Therapy. **Current Drug Targets** 2011; 12: 909-921.

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68. **Muñoz M**, González-Ortega A, Coveñas R. The NK-1 receptor is expressed in human leukemia and is involved in the antitumor action of aprepitant and other NK-1 receptor antagonists on acute lymphoblastic leukemia cell lines. **Invest New Drugs**. 2012; 30:529–540
69. Marisa Rosso, **Miguel Muñoz**, and Michael Berger. The role of Neurokinin-1 receptor in the microenvironment of inflammation and cancer. **TheScientificWorldJOURNAL**. 2012. 381434. 21 pages.
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72. **Miguel Muñoz**, Ana González-Ortega, Marisa Rosso, María José Robles-Frias, Andres Carranza, Manuel Vicente Salinas-Martín and Rafael Coveñas. The substance P/neurokinin-1 receptor system in lung cancer: focus on the antitumor action of neurokinin-1 receptor antagonists. **Peptides** 2012; 38: 318-325.
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glioblastoma: Coordinated undermining of survival paths with nine repurposed drugs (CUSP9) by the International Initiative for Accelerated Improvement of Glioblastoma Care. **Oncotarget** 2013; 4: 502-530.

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75. **Miguel Muñoz** and Rafael Coveñas. Involvement of substance P and the NK-1 receptor in cancer progression **Peptides** 2013; 48: 1-9.

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81. **Muñoz M**, Coveñas R. Involvement of substance P and NK-1 receptor in human pathology. **Amino Acids**. 2014; 46:1727–1750.

82. **Miguel Muñoz**, Ana González-Ortega, Manuel Vicente Salinas-Martín, Andrés

- Carranza, Susana Garcia-Recio, Vanessa Almendro and Rafael Coveñas. The neurokinin-1 receptor antagonist aprepitant is a promising candidate for the treatment of breast cancer. **Int J Oncol** 2014; 45: 1658-1672.
- 83. Muñoz M**, Coveñas R, Esteban F and Redondo M. The substance P/NK-1 receptor system: NK-1 receptor antagonists as anti-cancer drugs. **J Biosci** 2015; 40: 441-63.
- 84. Muñoz M**, Recio S, Rosso M, Redondo M and Coveñas R. The antitumour action of [D-Arg1, D-Phe5, D-Trp7,9, Leu11] substance P against small cell- and non-small-cell lung cancer cells is due to the pharmacological profile of its tachykinin receptor antagonist. **J Physiol Pharmacol** 2015; 66: 421-6.
- 85. Miguel Muñoz** and Rafael Coveñas. Targeting NK-1 receptors to prevent and treat pancreatic cancer: a new Therapeutic approach. **Cancers** 2015; 7: 1215-1232.
- 86.** Richard E. Kast, Susana Ramiro, Sandra Lladó, Salvador Toro, Rafael Coveñas and **Miguel Muñoz**. Antitumor action of temozolomide, ritonavir and aprepitant against human glioma cells. **J Neurooncol** 2016; 126: 425-431.
- 87. Miguel Muñoz** and Rafael Coveñas. Neurokinin-1 receptor antagonists as antitumor drugs in gastrointestinal cancer: a new approach. **Saudi J Gastroenterol** 2016;22:260-8.
- 88.** Alejandro Ortiz-Prieto, José L. Bernabeu-Wittel, Teresa Zulueta-Dorado, Ana I. Lorente-Lavirgen, **Miguel Munoz**. Immunolocalization of Substance P and NK-1 receptor in vascular anomalies. **Arch Dermatol Res** 2017; 309: 97-102.
- 89. Miguel Muñoz**, Marisa Rosso and Rafael Coveñas. The neurokinin-1 receptor antagonist L-732,138 promotes apoptosis in human gastrointestinal cancer cell lines. **Pharmacol Rep** 2017;69:696-701.
- 90. Miguel Muñoz**, Marisa Rosso, Andres Carranza and Rafael Coveñas. Increased nuclear localization of substance P in human gastric tumor cells. **Acta Histochem** 2017; 119: 337-342.

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96. **Muñoz M**, Parrilla J, Rosso M, Coveñas R. Antipruritic vs. Antitumour Action of Aprepitant: A Question of Dose. **Acta Derm Venereol**. 2019; 99: 620-621.
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99. **Miguel Muñoz** and Rafael Coveñas. Neurokinin-1 Receptor Antagonists as Anticancer Drugs. **Lett Drug Des Discovery** 2019; 16: 1110-1129.
100. **Miguel Muñoz**, Marisa Rosso and Rafael Coveñas. Neurokinin-1 receptor antagonists against hepatoblastoma. **Cancers**. 2019; 11: 1258.
101. **Miguel Muñoz**. Meet to the editor. **Lett Drug Des Discovery** 2019 (in press)

### **Book Chapters**

1. **M. Muñoz**. Otras técnicas en emergencias pediátricas. En **Emergencias pediátricas**. Fundación EPES. Ed. Ergon. Madrid, 1.999; pp. 241-246.
2. J Serrano, V Reyes, J L García, **M. Muñoz**. Fármacos de emergencias. En **Manual de Medicina de Emergencias**. Ed. ARÁN. Madrid. 2001; pp. 17: 193-292.
3. J Casademunt, **M. Muñoz**. Técnicas y procedimientos. En Manual de Medicina de Emergencias. Ed. ARÁN. Madrid. 2001; pp. 26: 361-435.
4. V Reyes, J L García, **M. Muñoz**. Pediatría. En **Manual de Medicina de Emergencias**. Ed. ARÁN. Madrid. 2001; pp. 347-352.
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6. **M. Muñoz**. Antagonista de los receptores NK1. Nueva terapia contra el cáncer En **Actualización en Oncología pediátrica**. Ed. Ana Mª Álvarez y HHUUVR. Sevilla 2003; pp.241-250.
7. **M. Muñoz**, JA Sault, A Romero, A Tovaruela. Parada cardiorespiratoria. RCP básica y avanzada en pediatría. En **Fundamentos de anestesiología, medicina crítica y tratamiento del dolor**. Ed. Grupo editorial universitario.1ª ediciónn. Granada.2004; pp. 673-686.

8. **M. Muñoz**, E Sánchez, A Tovaruela. Intoxicaciones. En **Manual de Cuidados Intensivos Pediátricos**. Ed. Publimed 2ª edición. Madrid 2004; pp.455-467.
9. E. Sánchez, JD López, JA Sout, **M Muñoz** et al. Diagnostico de muerte encefálica en niños. En **Actualizaciones en trasplantes**. Hospitales Universitarios Virgen del Rocío (ed.). Sevilla 2004; pp. 97-103.
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  22. **Muñoz M**, Gonzalez-Ortega A, Coveñas R. A Therapeutic Target in Leukemia: The NK-1 Receptor. In **Acute Lymphoblastic Leukemia: Etiology, Pathogenesis and Treatments**, Severo Vecchione and Luigi Tedesco (eds.). Nova Science Publishers, New York 2012; pp. 153-168.
  23. **Muñoz M**, Coveñas, R. Substance P, the NK-1 receptor and NK-1 receptor antagonists in cancer treatment. In **Frontiers in anti-cancer drug discovery**. Volume 4. Atta-ur-Rahman; Iqbal Choudhary, M. (eds.), Bentham Science,



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### **Encyclopedia Chapters**

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2. **Muñoz M** and Coveñas,R. (2019). Substance P. In: Ilpo Huhtaniemi and Luciano Martini, (Eds.), **Encyclopedia of Endocrine diseases**. 2<sup>nd</sup> Ed. Vol. 1, pp. 571-572. Oxford: Academic Press.

### **RESEARCH GRANTS**

**Awarding agency:** Consejería de Innovación, Ciencia y Empresa, Junta de Andalucía, (CTS-2247), Spain. **Title:** Antitumor action of Neurokin 1 receptor antagonists.

**Amount:** 227.700.00 € **Date:** 01 – 01 – 2007 to 31 – 12 – 2009

**Awarding agency:** Consejería de Innovación, Ciencia y Empresa, Junta de Andalucía, (FQM-1852), Spain. **Title:** New Neurokin 1 receptor antagonists: design, synthesis, and application in cancer treatment.

**Amount:** 142.536,30 € **Date:** 01 – 01 – 2007 to 31 – 12 – 2009

**Awarding agency:** Marjan Miklus Stiftung and Waltraut Bergmann Stiftung, Germany. **Title:** Immunolocalization of prosubstance P in normal and tumor tissues.

**Amount:** 24.000, 00 € **Date:** 01 – 01 – 2012 to 31 – 12 – 2012

**Awarding agency:** LOTEX Foundation, Switzerland.

**Title:** Antitumor activity of the NK-1 receptor antagonists against mesothelioma cell lines.

**Amount:** 50.000, 00 € **Date:** 01 – 01 – 2014 to 31 – 12 – 2014

### **PATENT OF INVENTION**

**P200400424.**

**PCT/ES2005/000068**

**USPTO Application no. 20090012086** “Use of non-peptide NK-1 receptor antagonists for the production of apoptosis in tumour cells”.

### **TEACHING**

Director of 46 PhD theses in the University of Seville. Spain

### **REFEREE OF PEER REVIEW JOURNALS (81)**

- Anales de Pediatría.
- Medical Science Monitor.
- Histology and Histopathology (2 times).
- Journal Chinese Clinical Medicine.
- Drug Design, Development and Therapy (2 times).
- International Journal of Tryptophan Research.
- Anticancer Drug (3 times).
- Clinical Ophthalmology.
- Expert Opinion on therapeutic patent (5 times).
- Journal of Pharmacy and Pharmacology.
- Journal of Cellular Physiology (3 times).
- Peptides (7 times).
- Trends in Molecular Medicine.
- Cancer Management and Research (3 times).
- OncoTargets and Therapy (11 times).
- Proceeding National Academy of Science (USA).
- Lung Cancer: Target and therapy.
- Molecules Journal.
- Current Neuropharmacology (3 times).
- International Journal of Nanomedicine (2 times).
- International Journal of Biochemistry & Cell Biology (2 times).
- Clinical & Experimental metastasis.
- Journal of Crohn's and Colitis.
- Cancer Letters.
- Journal of Clinical & Experimental Dermatology.
- Breast Cancer Research and Treatment.

- Neuroimmunomodulation.
- Medicinal Chemistry.
- Journal of Neurochemistry (2 times).
- Journal Of Medicinal Chemistry.
- World Journal of Gastroenterology (11 times).
- Bioorganic Medicinal Chemistry.
- Basic & Clinical Pharmacology & Toxicology.
- World Journal of Gastrointestinal Pharmacology and Therapeutics (3 times).
- Neuropeptides (3 times).
- World Journal of Clinical Oncology (2 times).
- Austin Journal of Endocrinology and Diabetes.
- World Journal of Experimental Medicine.
- Digestive Diseases and Sciences.
- World Journal of Surgical Oncology.
- BMC Cancer.
- World Journal of Gastrointestinal Endoscopy.
- Pathology Research and Practice.
- World Journal Radiology (2 times).
- World Journal of Gastrointestinal Oncology (2 times).
- World Journal of Clinical Cases.
- Microscopy and Microanalysis.
- World Journal Immunology.
- Medicine Lippincott Williams & Wilkins (7 times).
- World Journal of Gastrointestinal Surgery.
- Journal of Functional Foods.
- Planta Medica Letters.
- Journal of Cytology & Histology.
- World Journal of Gastrointestinal Pathophysiology.
- Rev. Fac. Med. de la Universidad Nacional de Colombia (2 times).
- World Journal of Stem Cells.
- European Journal of Cell Biology.
- International Journal of Cancer and Clinical Research.
- European Journal of Cell Biology.
- International Journal of oncology.

- Oncotarget.
- J Neuroinflammation
- Anticancer Agent in Medicine Chemistry.
- Cancer Biomarkers.
- Case Reports in Infectious Diseases.
- Expert Opinion in Drug Safety.
- Letter in Drug Design and Discovery (2 times).
- Neuroscience Research.
- Toxicology Mechanisms and Methods.
- Neoplasia.
- Journal of Immunological Sciences.
- Disease Markers.
- Advanced Science.
- Molecular Immunology.
- Molecular biology report.
- Cancer Biology & Medicine.
- Journal of Nuclear Medicine.
- Molecular Imaging and Biology.
- Expert Review of Clinical Pharmacology.
- Family Medicine & Medical Science Research
- Nutrients.

#### **REFEREE OF NATIONAL SCIENTIFIC RESEARCH PROJECTS**

Spain National Agency for Assessment and Foresight.

#### **REFEREE OF INTERNATIONAL SCIENTIFIC RESEARCH PROJECTS**

- Ministry of Science and Technology and Innovation, National Scientific and Technological Production of Argentina (2015-2017).
- The executive government agency of National Science Centre, Poland (2016-2017).

#### **EDITORIAL BOARD MEMBER OF PEER REVIEW JOURNALS**

- World Journal of Gastrointestinal Pharmacology and Therapeutics (2009-2013-2015-2019)
- Medicine Lippincott Williams & Wilkins (LWW) (2014-17)

- Letter in Drug Design and Discovery (2015-2017).

**EXTERNAL REVIEWER OF PHILOSOPHY THESIS**

Dr. Elizabeth Harford Wright.

Title: “Characterising the Role of Substance P in Human and Experimental Brain Tumours”

School of Medicine. University of Adelaide (Australia) 2013

**EXTERNAL REVIEWER FOR PROMOTION TO RESEARCH ASSOCIATE**

**PROFESSOR USA**

Professor Florin Tuluc.

Perelman School of Medicine at the University of Pennsylvania (USA) 2015