



<b>Part A. PERSONAL INFORMATION</b>		<b>CV date</b>	17/1/2023
First and Family name	José Manuel Baeyens Cabrera		
Passport, ID number		Age	
Researcher numbers	Researcher ID	G-2590-2016	
	Author ID		
	ORCID code	0000-0001-7168-0523	

### A.1. Current position

Name of University	University of Granada		
Department	Pharmacology		
Address and Country	Faculty of Medicine, Tower B, 11th floor, Avenida de la Investigación, 11. 18016 Granada. Spain		
Phone number	+34958248793	E-mail	<a href="mailto:jbaeyens@ugr.es">jbaeyens@ugr.es</a>
Current position	Full Professor	From	1996
UNESCO code	3209: Pharmacology; 3209.03: Evaluation of drugs		
Key words	Pain, analgesia, sigma-1 receptors, opioid receptors		

### A.2. Education

Degree/PhD	University	Year
PhD in Medicine and Surgery	University of Granada	1982
Degree in Medicine and Surgery	University of Granada	1980

### A.3. General Indicators of Scientific research quality (JCR articles, h Index, ...)

- Number of six-year excellence research periods (“sexenios”) recognized by CNEAI: 6 excellence research periods and 1 period of excellence in knowledge transfer (“sexenio de transferencia”)
- Total number of citations received by all the papers I have authored: 3.139 (Web of Science, WOS)  
Mean number of citations/year received during the last 5 years: 196 (WOS)
- h Index: 33 (WOS)
- International (PCT/EP) Granted Patents in the last 5 years: 4
- PhD Thesis supervised in the last 10 years: 5 (all of them with International Doctorate mention)

### Part B. CV SUMMARY (max. 3500 characters, including spaces):

My main areas of interest and research during the last 30 years have been to study the mechanisms involved in the analgesic effects of known drugs (mainly opioids) and to discover new pharmacological targets for pain treatment and new analgesic drugs. My research has been very innovative and has permitted me to be the inventor of several granted patents (in EU, USA, China, Japan, etc, see section C.4), whose present titular entities are pharmaceutical companies (Laboratorios Esteve and Wex Pharmaceuticals). In particular my studies have played a key role in the international recognition of the sigma-1 receptor as a new target for pain treatment and in the preclinical development of a new drug, SIRA, which recently has demonstrated efficacy for neuropathic pain treatment in phase II clinical trials. I have published more than 80 papers in journals included in the Journal Citation Reports (many of which appeared in Journals with an impact factor located in the first decil of its area, such as PNAS, Pain, Anesthesiology, Br J Pharmacol, Pharmacol Res, etc). My papers have attracted the attention of many other researchers and have obtained more than 3.100 citations according to ISI Web of Knowledge (more than 4.300 citations according to Google Scholars), which have permitted me to have an h index of 33 in the ISI database (37 in Google Scholars). It is particularly relevant that during the last 10 years my papers have obtained 1488 citations, a number much greater than that obtained by 99% of the authors included in the Pharmacology & Toxicology area, which is 618 or lower (according to ESI-Threshold of the ISI web of Knowledge). I have been the Principal Investigator of many public-funded competitive research projects, uninterruptedly from 1987 up to now; and of many private-funded research projects during the last 25 years (uninterruptedly during the last 18 years). I have also been the PI in the UGR of two CENIT projects (very competitive projects with public-private funding), which implied the

collaboration with several pharmaceutical and biotechnological companies (such as Esteve, Almirall, Uriach, Palau-Pharma and Proteomika among others). The projects that I have lead as PI have represented for the University of Granada incomes greater than 3,5 million euros. I have been invited speaker to Congresses organized by several Scientific Societies (such as Spanish Pharmacological Society, European Pharmacological Society, Spanish Pain Society or Spanish Neuroscience Society), and I have obtained research awards from Scientific Societies (Spanish Society of Pharmacology, Spanish Pain Society) and the University of Granada. As head of the “Neuropharmacology of pain” research group I have worked very actively in young researcher (both predoctoral and postdoctoral) training and mentoring, which have helped some of them to reach positions in Spanish Universities (2 full professors, 2 Associate professors, 2 Assistant professors) and other countries Universities (1 Associate professor in Kuwait University). During the last 12 years I have continuously organized scientific activities to popularize science among non-specialists, such as the “Brain Week” activities at the “Parque de las Ciencias” of Granada (the Science Museum more visited in Andalucía), which each year involves more than 50 medical students in practical demonstrations with around 5.000 Museum visitors.

## Part C. RELEVANT MERITS

### C.1. Publications:

1. González-Cano R, Artacho-Cordón A, Romero L, Tejada MA, Nieto FR, Merlos M, Cañizares FJ, Cendán CM, Fernández-Segura E, Baeyens JM. Urinary bladder sigma-1 receptors: A new target for cystitis treatment. *Pharmacol Res* 155:104724, 2020  
Impact factor (WOS): 5.893 First DECILE position (19/270) in “Pharmacology & Pharmacy”
2. Bravo-Caparrós I, Perazzoli G, Cronin SJ, Ruiz-Cantero MC, Vela JM, Hamed MH, Penninger JM, Baeyens JM, Cobos EJ, Nieto FR. Sigma-1 receptors control neuropathic pain and macrophage infiltration into the dorsal root ganglion after peripheral nerve injury. *FASEB J* 34:5951-5966, 2020  
Impact factor (WOS): 4.966 First DECILE position (9/93) in “Biology”  
Higher number of citations than 95% of papers published in the same year and area, according to Field Baseline-percentiles of Essential Science Indicators (WOS)
3. Jiménez-López J, El-Hammadi MM, Ortiz R, Cayero-Otero MD, Cabeza L, Perazzoli G, Martín-Banderas L, Baeyens JM, Prados J, Melguizo C. A novel nanoformulation of PLGA with high non-ionic surfactant content improves in vitro and in vivo paclitaxel activity against lung cancer. *Pharmacol Res*.141:451-465, 2019  
Impact factor (WOS): 5.893 First DECILE (19/270) in “Pharmacology & Pharmacy”  
Higher number of citations than 90% of papers published in the same year and area (WOS)
4. Montilla-García Á, Perazzoli G, Tejada MA, González-Cano R, Sánchez-Fernández C, Cobos EJ, Baeyens JM. Modality-specific peripheral antinociceptive effects of  $\mu$ -opioid agonists on heat and mechanical stimuli: Contribution of sigma-1 receptors. *Neuropharmacology* 135:328-342, 2018  
Impact factor (WOS): 4.249 First QUARTILE (40/267) in “Pharmacology & Pharmacy”  
Higher number of citations than 80% of papers published in the same year and area (WOS)
5. Tejada MA, Montilla-García A, Cronin SJ, Cikes D, Sánchez-Fernández C, González-Cano R, Ruiz-Cantero MC, Penninger JM, Vela JM, Baeyens JM, Cobos EJ. Sigma-1 receptors control immune-driven peripheral opioid analgesia during inflammation in mice. *Proc Natl Acad Sci USA* 114:8396-8401, 2017.  
Impact factor (WOS): 9.661 First DECILE (5/64) in “Multidisciplinary Sciences”  
Higher number of citations than 80% of papers published in the same year and area (WOS)
6. Contreras-Cáceres R, Leiva MC, Ortiz R, Díaz A, Perazzoli G, Casado-Rodríguez MA, Melguizo C, Baeyens JM, López-Romero JM, Prados JC. Hollow-p4VP Nanoparticles Loading Paclitaxel to Enhance Drug Chemotherapeutic Efficacy in Lung and Breast Cancer Cell Lines. *Nano Res* 10: 856-875, 2017  
Impact factor (WOS): 7.354 First DECILE (27/285) in “Material Sciences, Multidisciplinary”  
Higher number of citations than 80% of papers published in the same year and area (WOS)
7. Sánchez-Fernández C, Montilla-García Á, González-Cano R, Nieto FR, Romero L, Artacho-Cordón A, Montes R, Fernández-Pastor B, Merlos M, Baeyens JM, Entrena JM, Cobos EJ. Modulation of peripheral  $\mu$ -opioid analgesia by  $\sigma_1$  receptors. *J Pharmacol Exp. Ther* 348:32-45, 2014.  
Impact factor (WOS): 3.972 First QUARTILE (41/255) in “Pharmacology & Pharmacy”  
Higher number of citations than 90% of papers published in the same year and area (WOS)

8. González-Cano R, Merlos M, Baeyens JM, Cendán CM. Sigma-1 receptors are involved in the visceral pain induced by intracolonic administration of capsaicin in mice. *Anesthesiology* 118: 691-700, 2013.  
Impact factor (WOS): 6.17 *First DECILE* (1/29) in “Anesthesiology”  
Higher number of citations than 80% of papers published in the same year and area (WOS)
9. Sánchez-Fernández C, Nieto FR, González-Cano R, Artacho-Cordón A, Romero L, Montilla-García Á, Zamanillo D, Baeyens JM, Entrena JM, Cobos EJ. Potentiation of morphine-induced mechanical antinociception by  $\sigma_1$  receptor inhibition: role of peripheral  $\sigma_1$  receptors. *Neuropharmacology*. 70:348-58; 2013  
Impact factor (WOS): 4.819 *First DECILE* (23/256) in “Pharmacology & Pharmacy”  
Higher number of citations than 90% of papers published in the same year and area (WOS)
10. Romero L, Zamanillo D, Nadal X, Sánchez-Arroyos R, Rivera-Arconada I, Dordal A, Montero A, Muro A, Bura A, Segalés C, Laloya M, Hernández E, Portillo-Salido E, Escriche M, Codony X, Encina G, Burgueño J, Merlos M, Baeyens JM, Giraldo J, López-García J, Maldonado R, Plata-Salamán C, Vela J. Pharmacological properties of S1RA, a new sigma-1 receptor antagonist that inhibits neuropathic pain and activity-induced spinal sensitization. *Br J Pharmacol* 166: 2289-2306, 2012  
Impact factor (WOS): 5.07 *First DECILE* (21/261) in “Pharmacology & Pharmacy”  
Higher number of citations than 90% of papers published in the same year and area (WOS)

### C.2. Public-funded research projects (project code, title, funding entity, start-end dates)

1. Project PID2019-108691RB-I00. La inhibición del receptor sigma-1: una nueva estrategia para el tratamiento del dolor [Sigma-1 receptor inhibition: a new strategy for pain treatment]. Ministerio de Ciencia e Innovación. 1/6/2020 al 31/5/2024. 157.300 €. Tipe of participation: Principal Investigator.
2. Project SAF2016-80540-R, Modulación del dolor por los receptores sigma-1 periféricos [Modulation of pain by peripheral sigma-1 receptors]. Ministerio de Economía y Competitividad. 30/12/2016 to 29-12-2019. 133.100 €. Tipe of participation: Principal Investigator.
3. Project P11-CTS-7649, Nanopartículas de paclitaxel: eficacia antitumoral, toxicidad e influencia del bloqueo de los receptores sigma-1 [Nanoparticles of paclitaxel: antitumoral efficacy, toxicity and influence of sigma-1 receptor blockade]. Excellence Project of Junta de Andalucía. 27/03/2013 to 30/03/2018. 233.242 €. Tipe of participation: Principal Investigator.
4. Project SAF2010-15343. Papel de los receptores sigma-1 en el dolor visceral [Role of sigma-1 receptors in visceral pain]. Ministerio de Ciencia e Innovación. 01/01/2011 to 31/12/2014. 84.700 €. Tipe of participation: Principal Investigator.
5. Project CEN-20091003. NEOGENIUS PHARMA: Identification of new drugs for arthrosis treatment. Ministerio de Industria, Comercio y Turismo. Centro para el Desarrollo Tecnológico e Industrial (CDTI), CENIT Program. 01/01/2010 to 31/12/2012. 1.036.000 €. Tipe of participation: Principal Investigator in the UGR.

### C.3. Private-funded research Contracts (contract code, title, financing corporation, start-end dates)

1. Contrat number F-4596, Fundación Universidad de Granada-Empresa. Nuevas moléculas en analgesia (Multimodal 1): Desarrollo clínico Fase 1 [New molecules in analgesia (Multimodal 1): Phase 1 clinical development]. Esteve Pharmaceuticals. 1/7/2019 to 30/6/2020. 48.000 € + VAT. Tipe of participation: Principal Investigator.
2. Contrat number F-4472, Fundación Universidad de Granada-Empresa. Nuevas moléculas en analgesia (Multimodal 5): identificación de leads [New molecules in analgesia (Multimodal 5): leads identification]. Esteve Pharmaceuticals. 1/7/2019 to 30/6/2020. 220.000 € + VAT. Tipe of participation: Principal Investigator.
3. Contrat number F-4203, Fundación Universidad de Granada-Empresa. Estudio de la eficacia analgésica de nuevos fármacos: Mecanismo de acción y efectos secundarios [Study of the analgesic efficacy of new drugs: mechanism of action and secondary effects]. Laboratorios Dr. Esteve. 01/10/2015 to 31/12/2018. 360.000 € + VAT. Tipe of participation: Principal Investigator.
4. Contract number 3668, OTRI of the UGR. Evaluación de la eficacia analgésica de fármacos [Evaluation of the analgesic efficacy of new drugs]. Laboratorios Dr. Esteve. 01/10/2015 to 31/12/2016. 120.000 € + VAT. Tipe of participation: Principal Investigator.

5. Contrat number F-3529, Fundación Universidad de Granada-Empresa. Evaluación de nuevos fármacos analgésicos [Evaluation of new analgesic drugs]. Laboratorios Dr. Esteve. 01/02/2012 al 31/12/2017. 410.000 € + VAT. Tipe of participation: Principal Investigator.

#### C.4. **Granted International Patents** (Inventors, title, country patent number (date of granting), Titular entity)

1. Buschmann H; Vela-Hernández JM, Baeyens-Cabrera JM. Use of sodium channel blockers for the treatment of neuropathic pain developing as a consequence of chemotherapy. EU patent EP 2394646 B1 (25-7-2018), USA patents US 10149852 B2 (11-12-2018) and US 9018222 B2 (28-4-2015), Japan patent JP 5859207 B2 (10-2-2016), China patent CN 101563079 B (5-12-2012). Titular entity: Wex Pharmaceuticals Inc
2. Baeyens-Cabrera JM; Buschmann H; Vela-Hernández JM; Zamanillo-Castañedo D, Nieto-López FR. Use of compounds binding to the sigma receptor for the treatment of neuropathic pain developing as a consequence of chemotherapy. EU patent EP 2254579 B1 (10-1-2018), Japan patent JP 5859207 B2 (10-2-2016), Russian patent RU 2537226 C2 (27-12-2014). Pending in USA (application numbers US 2011/0052723 A1 and US 2017/0112829 A1).
3. Baeyens-Cabrera JM; Buschmann H; Vela-Hernández JM; Zamanillo-Castañedo D, Nieto-López FR. Sigma ligands for the prevention or treatment of pain induced by chemotherapy. EU patent EP 2464356 B1 (6-5-2015), Japan patent JP 5922575 B2 (24-5-2016), China patent CN 102497864 B (22-7-2015), Canada patent CA 2770441 (12-12-2017), Russia patent RU 2543382 C2 (27-2-2015). Pending in USA (application numbers US 2012/0141606 A1, US 2016/0220575 A1 and US 2016/0199380 A1). Titular Entity: Laboratorios Dr. Esteve.
4. Baeyens-Cabrera, JM. Use of compounds active on the sigma receptor for the treatment of mechanical allodynia. EU Patent EP 1781272 B1 (6-9-2017). Titular Entity: Laboratorios Dr. Esteve.

#### C.5. **Invited conferences in Scientific Societies Congresses**

1. Baeyens JM. Dolor neuropático postquimioterapia: Nuevas oportunidades de tratamiento. XV Congreso de la Sociedad Española del Dolor, Palma de Mallorca, May 2018
2. Baeyens JM. Sigma-1 receptor blockade unmask peripheral opioid analgesia. 37 Congress of the Spanish Pharmacological Society (guest Society: British Pharmacological Society). Barcelona, June 2017
3. Baeyens JM. Sigma-1 receptors and pain: from mouse to man. Sigma-1 receptor symposium. Barcelona, May 2017.
4. Baeyens JM. Combinación de opioides: Justificación farmacológica. XXV Congreso de la Asociación Andaluza del dolor, Cádiz October 2016
5. Baeyens JM. Nuevas dianas de actuación para el tratamiento del dolor neuropático: el receptor  $\sigma 1$ . XXXIV Congreso de la Sociedad Española de Farmacología, Murcia September 2013
6. Baeyens JM.  $\sigma 1$  receptor blockade enhances opioid induced antinociception. 6th European Congress of Pharmacology. Granada July 2012

#### C.6. **Direction of PhD Thesis** (Doctorate student, year of defense, title, marck)

1. I Bravo-Caparrós, 2019. Sigma-1 receptor inhibition ameliorates neuropathic pain induced by nerve transection. Sobresaliente Cum laude. International Doctorate mention  
Award for the best PhD Thesis of the Spanish Royal Academy of Doctors
2. A Montilla García, 2018. Control of opioid analgesia and tolerance by sigma-1 receptors: Studies on nociceptive and inflammatory joint pain. Sobresaliente Cum laude. International Doctorate mention  
Award for the best PhD Thesis of the Spanish Society of Pain
3. C. Sánchez-Fernández, 2014. Potentiation of opioid-induced antinociception by sigma-1 receptor inhibition: role of peripheral sigma-1 receptors Sobresaliente Cum Laude. International Doctorate mention
4. R González-Cano, 2014, Role of sigma-1 receptors in visceral pain. Sobresaliente Cum Laude. International Doctorate mention.
5. FR Nieto, 2012, Neuropathic pain induced by paclitaxel: role of voltage-gated sodium channels and sigma-1 receptors. Sobresaliente Cum Laude. International Doctorate mention.  
Extraordinary award for PhD Thesis of the University of Granada