

**Part A. PERSONAL INFORMATION**

Part A. PERSONAL INFORMATION			CV date		14/10/2020
First and Family name	Jose Carlos García-Borrón Martínez				
Social Security, Passport, ID number	37.683.687-G		Age	63	
Researcher numbers	Researcher ID		H-2247-2015		
	Orcid code		0000-0002-9192-588X		

A.1. Current position

Name of University/Institution	University of Murcia		
Department	Biochemistry, Molecular Biology and Immunology		
Address and Country	Edificio LAIB, Carretera Buenavista s/n, 30120 El Palmar, Murcia		
Phone number	868 88 46 76	E-mail	gborron@um.es
Current position	Full Professor ("Catedrático")	From	27-04-2002
Espec. cód. UNESCO	2302-230221-230204-230215		
Palabras clave	Melanocytes, melanoma, MC1R, signalling, differentiation		

A.2. Education

PhD	University	Year
Degree in Pharmacy	University of Barcelona	1980
PhD in Pharmacy	University of Granada	1984

A.3. JCR articles, h Index, thesis supervised...

3.1. Six-year research modules: 6 (Corresponding to all possible 6-year periods from the start of my carrier to date, without loss of a single year).

1: 1980-85 // **2:** 1986-91 // **3:** 1992-97 // **4:** 1998-2003 // **5:** 2004-09// **6:** 2010-16

3.2 Doctoral Thesis supervised since 2010: 6.

Cecilia Herráiz Serrano, 11 February 2011

Ana Belén Pérez Oliva, July 2011

Marta Abrisqueta González, 5 February 2016

Julia Sirés Campos, 18 May 2018

María Castejón Griñán, 19 July 2019

Idoya María Martínez Vicente, 22 July 2021

3.3. Scientific Production

Total indexed articles (Web of Science): 114

Journals within Q1 of its area: 59 (52%)

Sum of the times cited: ~7100 (Google Scholar)

Average Citations per year (last five years): 472 (Google Scholar)

Average Citations per Article: ~ 62 (Google Scholar)

h-index: 46 (Google Scholar)

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

I was born in Lorca (Murcia) in 1957. I earned a degree in Pharmacy (Univ of Barcelona, 1980) and a PhD in the Univ of Granada (1984). I performed post-doctoral stays at the Commonwealth Univ of Virginia (2 years) and the Univ of Missouri at Kansas City (1 year) working on nicotinic acetylcholine receptor structure-function relationships, and a 1 year sabbatical stay at Free Univ of Brussels (1996) working on homology cloning of new GPCRs. I became tenured assistant professor (1987) and full professor (2002) at the Univ of Murcia, where I served as Director of Dept. of Biochemistry, Molecular Biology and Immunology (2006-2010). I have obtained and led 8 consecutive national competitive research projects, published 114 papers (H index 44) and mentored 14 PhD students. My research focuses on the molecular biology of melanocytes and melanoma. My early work contributed to the knowledge of enzymatic regulation of mammalian pigmentation, leading to the currently accepted melanogenic pathway found in textbooks. I next focused on molecular mechanisms of

regulation of melanocyte growth and differentiation. I identified TNF α , TGF β and oxidative stress as potent melanogenesis inhibitory signals, and characterized their mechanism of action. My main interest is now on the relationship of melanocortin 1 receptor (MC1R) alleles and melanoma. My team identified the consensus *MC1R* sequence, and new hypomorphic variants in individuals of skin phototypes I and II and in melanoma patients. We provided the first reports of MC1R constitutive activity, its alteration in allelic variants associated with melanoma, and MC1R dimerization with formation of functionally altered heterodimers. Other major findings are the identification of the molecular machinery of MC1R homologous desensitization, novel mechanisms of functional regulation based on interaction with MGRN1, the description of cAMP-independent transactivation of cKIT by WT and variant MC1R, and the activation of AKT-dependent DNA repair downstream of variant MC1R. I was awarded the HS Raper Medal for outstanding contributions to the molecular biology of melanocytes by the International Federation of Pigment Cell Societies (IFPCS) in 2008 and The Clinuvel Lectureship in 2010. I have participated in the Editorial Advisory Boards of *Melanoma Research* (1994-1998), *Pigment Cell Research* (1995-2000), *Experimental Dermatology* (from 2014) and *Pigment Cell and Melanoma Research* (from 2005). I belong to the Editorial Advisory Panel of the *Biochemical Journal* since 2005. In the European Society of Pigment Cell Research, I served as Executive Council member (1995-2007), Secretary (2000-2003), and President (2003-2006). I have been member of the Executive Council of the IFPCS (2001-2006) and its Secretary-Treasurer (2005-2008). I have been involved in management of national scientific programs. I served as panel member for the J de la Cierva (2004, 2011) and Ramón y Cajal (2015) programs, the panel "Cancer" from the FIS (2005, 2006, 2015), and as referee of the FPU fellowship program (2006-2009) and the ANEP (MICINN-MINECO, 2009-2014). I was coordinator of the "Área de Biomedicina, ANEP" (july 2015-july 2018), then co-coordinator of the CAN subprogram (AEI). Currently, I am "Coordinador de los paneles 501 (Cáncer) and 511 (Pediatría y Medicina Perinatal, Anomalías congénitas y del Metabolismo)", Subdirección General de Evaluación y Fomento de la Investigación, ISCIII.

Part C. RELEVANT MERITS

C.1. Publications (including books)

- 1- Martínez-Vicente I, Abrisqueta M, Herraiz C, Sirés-Campos J, Castejón-Griñán M, Bennett DC, Olivares C, García-Borrón JC, Jiménez-Cervantes C. Mahogunin Ring Finger 1 Is Required for Genomic Stability and Modulates the Malignant Phenotype of Melanoma Cells. *Cancers* (Basel). 2020 Oct 1;12(10):E2840.
- 2- Castejón-Griñán M, Herraiz C, Olivares C, Jiménez-Cervantes C, García-Borrón JC. cAMP-independent non-pigmentary actions of variant melanocortin 1 receptor: AKT-mediated activation of protective responses to oxidative DNA damage. *Oncogene*. 2018 Jul;37(27):3631-3646
- 3- Abrisqueta M, Olivares C, Herraiz C, Castejón-Griñán M, Sirés-Campos J, García-Borrón JC, Jiménez-Cervantes C. Human melanocortin 1 receptor-mediated ubiquitination of nonvisual arrestins. Role of Mahogunin Ring Finger 1 E3 ligase. *Biochim Biophys Acta*. 2018 Jan;1865(1):76-94.
- 4- Herraiz C, Jiménez-Cervantes C, Sánchez-Laorden B, García-Borrón JC (2017) Functional interplay between secreted ligands and receptors in melanoma. *Semin Cell Dev Biol*. 2017 Jul 1. pii: S1084-9521(16)30496-7. doi: 10.1016/j.semcdb.2017.06.021
- 5- Abrisqueta M, Herraiz C, Pérez Oliva AB, Sanchez-Laorden BL, Olivares C, Jiménez-Cervantes C, García-Borrón JC (2013) Differential and competitive regulation of human melanocortin 1 receptor signaling by beta-arrestin isoforms. *J Cell Sci* 126, 3724-3737
- 6- Herraiz C, Journé F, Abdel-Malek Z, Ghanem G, Jiménez-Cervantes C, García-Borrón JC (2011) Signaling from the Human Melanocortin 1 Receptor to ERK1 and ERK2 Mitogen-Activated Protein Kinases Involves Transactivation of cKIT. *Mol Endocrinol* 25, 138-156
- 7- Pérez Oliva AB, Olivares C, Jiménez-Cervantes C, García-Borrón JC (2009) MGRN1 ubiquitin ligase inhibits melanocortin signalling by a ubiquitylation-independent mechanism. *J Biol Chem* 284, 31714-31725

8- Sánchez-Laorden BL, Herraiz C, Valencia JC, Hearing VJ, Jiménez-Cervantes C, García-Borrón JC (2009) Aberrant trafficking of human melanocortin 1 receptor variants associated with red hair and skin cancer: Steady-state retention of mutant forms in the proximal golgi. *J Cell Physiol* 220, 640-654

9- Sanchez-Laorden BL, Jimenez-Cervantes C, Garcia-Borrón JC (2007) Regulation of human melanocortin 1 receptor signaling and trafficking by Thr-308 and Ser-316 and its alteration in alleles associated with red hair and skin cancer *J Biol Chem* 282, 3241-3251

10- Sánchez-Laorden BL, Sánchez Más J, Martínez Alonso E., Martínez Menarguez JA, García-Borrón JC, Jiménez-Cervantes C. Dimerization of the human melanocortin 1 receptor: Functional consequences and dominant-negative effects (2006) *J Invest Dermat* 126, 172-181

C.2. Research projects and grants

Continuous involvement as IP in consecutive national competitive projects financed by the "Plan Nacional", since 1997 (Project SAF 97-0167). In the last 10 years these projects are:

1- Title: The Human Melanocortin 1 Receptor as a model for the Functional Coupling of the Melanocortin Receptor Family. **Reference:** SAF 2009-10942

Financing Body and Call: MICINN, Plan Nacional de Ciencia y Tecnología

Principal Investigator: José Carlos García-Borrón. **Institution:** UMU

Duration: from 01/01/2010 until 31/12/2012. **Amount:** 145.200 €

2- Title: Regulation of Signaling from the human Melanocortin 1 Receptor and its Alterations in Skin Cancer-Associated Variants. **Reference:** SAF 2012-32134

Financing Body and Call: MINECO, Plan Nacional de Ciencia y Tecnología

Principal Investigator: José Carlos García-Borrón. **Institution:** UMU

Duration: from 01/01/2013 until 31/12/2015. **Amount:** 140.000 €

3- Title: The Melanocortin 1 Receptor and Mahogunin as phenotypic determinants in melanocytes and melanoma cells. **Reference:** SAF2015-67092-R

4- Financing Body and Call: MINECO, Plan Nacional de Ciencia y Tecnología

Principal Investigator: JC García-Borrón and C Jiménez-Cervantes. **Institution:** UMU

Duration: from 01/01/2016 until 31/12/2018. **Amount:** 242.000 €

5- Title: Functional interplay of the melanocortin 1 receptor and Mahogunin Ring Finger 1 in melanoma susceptibility and progression. **Reference:** SAF2018_RTI2018-094929-B-I00

Financing Body and Call: MINECO, Plan Nacional de Ciencia y Tecnología

Principal Investigator: JC García-Borrón and C Jiménez-Cervantes. **Institution:** UMU

Duration: from 01/01/2019 until 31/12/2021. **Amount:** 230.000 €

6- Title: Melanocortin 1 receptor and polyamines as phenotypic determinants of melanocytes and melanoma cells. **Reference:** 19875/GERM/15

Financing Body: Fundación Seneca, CARM. Convocatoria de Grupos de Excelencia 2015

Principal Investigator: José Carlos García-Borrón and Rafael Peñafiel. **Institution:** UMU

Duration: from 01/01/2016 until 30/06/2021. **Amount:** 250.000 €

C.3. Contracts

Title: Exploration of the effect of selected agents on the melanogenesis in cultured human epidermal cells. **Company:** Wacker Chemie AG, Munich, Germany.

Principal Investigator: Francisco Solano Muñoz. **Partners:** UMU and Wacker Chemie AG

Type of contract: Agreement for assays and confidential results. Supervised by OTRI

Duration: Octubre 2013-Diciembre 2014. **Total budget of contract:** 13.880 €

C.4. Patents

Inventor(s): Lorente Salinas J, Castillo Sánchez J; Benavente-García García O; et al.

Title: Use of 2,3-dehydronaringenin derivatives as xanthine oxidase inhibitors in preparation of a drug to treat or prevent inflammatory processes and derived chronic diseases

Patent Number(s): ES2353001-T3 . Patent Assignee: Furfural Español SA

C.5, C.6, C.7... (e. g., Institutional responsibilities, memberships of societies...)

Among others:

- Member of the panel for evaluation of the Ramón y Cajal (2015) and Juan De la Cierva (2004, 2011) Programs
- Member of the panel “Cancer” from “FIS” (2005, 2006)
- Reviewer for the fellowships program “FPU” (2006-2009)
- Temporary Assistant (“Adjunto temporal”), ANEP (junio 2015)
- Member of the BMED panel (2009-2015)
- Member of the “Technical Committee of the State Plan”, 2013 calls “Excellence” and “Challenges”
- Reviewer for autonomic agencies (Andalucía, Islas Baleares)
- Reviewer for international agencies (NSF, USA, and Wellcome Trust, UK)
- Coordinator of the “BMED” Area, ANEP (july 2015-18)
- Co-coordinator of the Cancer Subprogram, AEI (july 2018-july 2019)
- Coordinator of panels 501 and 511, FIS, ISCIII (starting january 2020)

C.5. Membership of Scientific Boards and Committees

- European Society for Pigment Cell Research: Member of the Executive Council (1995-2007)
- Secretary (2000-2003) and President of the ESPCR (2003-2006)
- International Federation of Pigment Cell Societies: Member of Executive Council (2001-2006)
- Secretary-Treasurer of the IFPCS (2005-2008)

C.6. Membership of International Editorial Boards

- Member of the Editorial Board of *Melanoma Research* (1994-1998)
- Member of the Editorial Board of *Pigment Cell Research* (1995-2000)
- Member of the Editorial Board of *Pigment Cell and Melanoma Research* (2005-to date)
- Member of the Editorial Board of *Experimental Dermatology* (2013-to date).
- Member of the Advisory panel of *Biochemical Journal* (2005-to date)
- Member of the Editorial Board of the *International Journal of Molecular Sciences*, Section “Molecular Oncology” (2019 to date)

C.7. Organization of International R+D events

Member of the Organizing Committee of the following International Meetings

- XIIIth ESPCR Meeting of the ESPCR, Barcelona 2006

Member of the Scientific Committee of the following International Congresses:

- VIth ESPCR Meeting, Lausanne, 1995
- Xth ESPCR Meeting, Rome, 2001
- 19th International Pigment Cell Conference (IPCC), Washington, 2005
- XIVth ESPCR Meeting, Bari, 2007
- 20th International Pigment Cell Conference (IPCC), Sapporo, 2008
- XVth ESPCR Meeting, Münster, 2009
- XVIth ESPCR Meeting, Cambridge, 2010
- 21th International Pigment Cell Conference (IPCC), Bordeaux, 2011
- 22th International Pigment Cell Conference (IPCC), Singapore 2014
- XXIth ESPCR Meeting, Rennes, 2018
- XXIIth ESPCR Meeting, Brussels, 2019

C.8. International Awards

- **The HS Raper Medal** for outstanding contributions to the biochemistry and molecular biology of melanocytes (Sapporo, 2008).