MINISTERIO DE CIENCIA, INNOVACIÓN Y UNIVERSIDADES

CURRICULUM VITAE (maximum 4 pages)

CV date	January-2023

Part A. PERSONAL INFORMATION

First and Family name	Gregorio HUEROS SOTO		
Social Security, Passport, ID number		Age	
Researcher numbers	Researcher ID		
	Orcid code		

A.1. Current position

Name of University/Institution	Universidad de Alcalá		
Department	Biomedicina y Biotecnología (Unidad de Genética)		
Address and Country	Campus Universitario-28805, España		
Phone number	E-mail	gregorio.hueros@uah.es	
Current position	Catedrático de Universidad	From	15/10/2016
Espec. cód. UNESCO	2415		
Palabras clave	Seed Development, transfer cells, grain filling, corn, signal transduction		

A.2. Education

PhD	University	Year
Biology	Alcalá de Henares	1991

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

Cinco sexenios de investigación, el último con fecha 31/12/2018
Un sexenio de transferencia, en el periodo 1997-2012
PhD theses supervised in the last 10 years: 4
Cites: 1199
Cites/year in the last 5 years: 75.8
Research Gate Score: 32.59
JRC articles: 39
Book chapters: 3
Articles in Q1: 31
h index: 18

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

I started working on maize seed development during my second postdoctoral stay (1993-1995) at the Max-Planck Institute in Cologne (Germany). At that time, we identified the first transfer cell specific gene (Hueros et al., 1995). We immediately understood that access to the gene expression program of this tissue, located at the entrance of the grain of corn and with homologous tissues in the grains of wheat, barley or rice, could be the key to understand and manipulate the grain filling process. Already in Alcalá, in 1997, I started a research group to work on an European project on this subject (Manipulation of transfer cells to improve grain filling). We have continued working in the same thematic, in the framework of 17 research projects, in which I have been IP. Including international, national and regional projects, as well as projects with private funding. Within these projects, we have been able to collaborate with some of the largest multinational companies in Plant Biotechnology.

The results of these projects have been reflected, so far, in 28 research articles and book chapters (https://www.researchgate.net/profile/Gregorio_Hueros). Our group has become an international benchmark in the field of cereal seed development and transfer cells.

Among the milestones reached by the group, it is worth mentioning the identification of a transcriptional factor, ZmMRP1 (Gómez et al., 2002), which regulates the expression of a large number (at least 100) of transfer cell-specific genes. The gene, in fact, was demonstrated (Gómez et al., 2009) as a key factor in the differentiation of this tissue.

The long process of characterization of ZmMRP1 illustrates the difficulties associated with any strategy of reverse genetics, the plasticity of living beings and their genomes seems to be very

effective in buffering the appearance of informative phenotypes. Recently, the availability of global and precise analysis techniques has allowed us to detect informative molecular phenotypes. We have found (Muñiz et al. submitted ms) that the transfer cells have an essential role in the coordination between cellular differentiation in the endosperm and the influx of nutrients. Through a novel mechanism of signal transduction, based on the synthesis of mobile response regulators (Muñiz et al., 2006; 2010).

Part C. RELEVANT MERITS

C.1. Publications (including books) (last 10 years + more relevant ones from earlier years)

1. **Royo, J., Muñiz, L. M., Gómez, E., Añazco-Guenkova, A. M. & Hueros, G.** (2022) Distinct Hormone Signalling-Modulation Activities Characterize Two Maize Endosperm-Specific Type-A Response Regulators. Plants 11, 1992.
2. **Bergareche, D., Royo, J., Muñiz, L.M. and Hueros, G.** (2018) Cell wall invertase activity regulates the expression of the transfer cell-specific transcription factor ZmMRP-1. Planta 247:429-442
3. **Chourey, P. and Hueros, G.** (2017) The basal endosperm transfer cell layer (BETL): Gateway to the maize kernel. In: Maize Kernel Development. Edited by B.A. Larkins. CABI. ISBN:9781786391216
4. **López M, Gómez E, Faye C, Gerentes D, Paul W, Royo J, Hueros G, Muñiz LM** (2017) Planta 245:409-424
5. **Chettoor AM, Yi G, Gomez E, Hueros G, Meeley RB, Becraft PW** (2015) Journal of Integrative Plant Biology 57 (3) 236-246
6. **Royo J, Gómez E, Sellam O, Gerentes D, Paul W, Hueros G** (2014) Frontiers in Plant Biology. Vol 5-180. doi:10.3389/fpls.2014.00180
7. **Muñiz LM, Gómez E, Guyon V, López M, Khbaya B, Sellam O, Perez P, Hueros G** (2014) Frontiers in Plant Biology. Vol 5-158. doi:10.3389/fpls.2014.00158

- **Fouquet R, Martin F, Fajardo D, Gault CM, Gómez E, Tseung C-W, Policht T, Hueros, G. Settles AM** (2011). Maize rough endosperm 3 encodes an RNA splicing factor required for endosperm cell differentiation and has a nonautonomous effect on embryo development. Plant Cell, 23: 4280–4297
- **Gómez E, Royo J, Muñiz LM, Sellam O, Paul W, Gerentes D, Barrero C, López M, Perez P, Hueros G** (2009). The maize transcription factor ZmMRP-1 is a key regulator of the differentiation of transfer cells. Plant Cell, 21: 2022–2035
- **Muñiz LM, Royo J, Gómez E, Barrero C, Bergareche D, Hueros G** (2006). The maize transfer cell-specific Type A response regulator Zm-TCRR-1 appears to be involved in intercellular signalling. Plant J. 48, 17-27
- **Gómez E, Royo J, Guo Y, Thompson RD, Hueros G** (2002) Establishment of cereal endosperm expression domains: identification and properties of a maize transfer cell-specific transcription factor, ZmMRP-1. Plant Cell. 14, 599- 610
- **Serna A, Maitz M, O'Connell T, Santandrea G, Thevissen K, Tienens K, Hueros G, Faleri C, Cai G, Lottspeich F, Thompson RD** (2001) Maize endosperm secretes a novel antifungal protein into adjacent maternal tissue. Plant J. 25, 687-698
- **Royo J, Gómez E, Hueros G** (2000) CMP-KDO synthetase: a plant gene borrowed from gram-negative eubacteria. Trends in Genetics 16, 432-433
- **Royo J, Gómez E, Hueros G** (2000) A maize homologue of the bacterial CMP-KDO synthetases: similar pathways operate in plants and bacteria for the activation of KDO prior to its incorporation into outer cellular envelopes. J. Biol. Chem. 275, 24993-24999
- **Hueros G, Gómez E, Cheik N, Edwards J, Weldon M, Salamini F, Thompson R** (1999) Identification of a promoter sequence from the BETL-1 gene cluster able to confer transfer cell-specific expression in transgenic maize. Plant Physiol. 121, 1143- 1152
- **Hueros G, Varotto S, Salamini F, Thompson RD** (1995) Molecular characterization of BETL-1, a gene expressed in the transfer cells of the endosperm of maize. Plant Cell 7, 747- 757

C.2. Research projects and grants (last 10 years)

1. Título del proyecto: **Una ruta atípica de transducción de señales en maíz, de tipo dos-componentes, revela un nuevo mecanismo de intercomunicación entre auxina y citoquinina**
   Entidad financiadora: Ministerio de Ciencia, Innovación y Universidades (PGC2018-101803-B-I00)
   Entidades participantes: Univ. Alcalá
   Duración, desde: 1-1-2019 hasta: 31-12-2022
   Cuantía de la subvención: 145200 €
   Investigador responsable: Gregorio Hueros Soto
   Número de investigadores participantes: 4
2. Título del proyecto: **THE TRANSFER CELLS OF THE MAIZE SEED, AN ANTI-FUNGAL BARRIER**
   Entidad financiadora: The Bill & Melinda Gates Foundation (OPP1068570)
   Entidades participantes: Univ. Alcalá
   Duración, desde: 1-10-2012 hasta: 31-3-2014
   Cuantía de la subvención: 100000 US$.
   Investigador responsable: Gregorio Hueros Soto
3. Título del proyecto: **DIVERSAS RUTAS DE TRANSDUCCION DE SEÑALES CONVERGEN EN UN FACTOR TRANSCRIPCIONAL ESENCIAL EN EL LLENADO DEL GRANO DE CEREALES**
   Entidad financiadora: MEC BIO2012-39822
   Entidades participantes: Univ. Alcalá
   Duración, desde: 1-1-2013 hasta: 31-12-2015
   Cuantía de la subvención: 169400-€.
   Investigador responsable: Gregorio Hueros Soto

C.3. Contracts

Título: Molecular characterisation of maize kernel mutants (PMG^2)
Entidad Financiadora: BIOGEMMA SAS
Desde: Septiembre-2002 Hasta: Septiembre-2006
Cuantía de la subvención: 280.000 €.
Investigador Responsable: Dr. Gregorio Hueros Soto
Número de Investigadores: 4
Entidades participantes: Univ. Alcalá, Univ. Lyon-ENSL, Biogemma SAS

C.4. Patents

1. Novel basal endosperm trasnfer cell layer (BETL) specific genes-ES 2338285 (T3)
Inventor(s): Thompson Richard D [DE]; Yan Guo [DE]; Salamini Francesco [DE]; Hueros Gregorio [ES] +
Publication date: 2010-05-05. Applicant(s): MAX PLANCK GESELLSCHAFT +
C. International: A01H5/00; C07K14/415; C07K16/16; C12N15/29; C12N15/82; C12N5/10; G01N33/50. C. European: C07K14/415; C12N15/82B20B6; C12N15/82C8B6
Application number: ES19990917870T 19990326. Priority number(s): EP19980105628 19980327
2. Zm TCRR-1 plant signal trasnduction gene and promoter-US 2009307795 (A1)
Inventor(s): Perez Pascual [FR]; Paul Wyatt [FR]; Menendez Luis M Muñiz [ES]; Hueros Soto Gregorio [ES] +
Publication date: 2009-12-10. Applicant(s): BIOGEMMA FR [FR] + (BIOGEMMA)
C. International: A01H5/00; C07K14/415; C12N15/00; C12N15/11; C12N15/82; C12N5/04. C. European: C12N15/82B20B6; C12N15/82C8
Application number: US20070279273 20070214. Priority number (s): EP20060110067 20060216; WO2007EP51458 20070214
3. PEDICEL SPECIFIC PROMOTER US 2011219473 (A1)

Inventor(s): López Román Maria Isabel [ES]; Hueros Soto Gregorio [ES]; Paul Wyatt [FR] +
Publication date: 2011-09-08. Applicant(s): BIOGEMMA FR [FR] +
C. International: A01H1/00; A01H5/00; C07H21/04; C12N15/87; C12N5/10
Application number: US20080934833 20080325. Priority number(s): WO2008EP53511 20080325

4. Method for plant improvement

Inventor(s): Pascual Perez, Wyatt Paul, Soto Gregorio Hueros
Publication date: Aug 13, 2015. Applicant(s): Biogemma, Universidad De Alcalà
Application number: PCT/EP2015/052218.

C.5 PhD theses

Title: Genómica funcional del desarrollo del endospermo de maíz
Doctorando: Diego Bergareche Nieto. Universidad: Alcalá de Henares
Facultad: Biología. Fecha: 12-2009
Directores: Gregorio Hueros Soto y Joaquín Royo Cárcamo

Title: Disección genética de los mecanismos reguladores del desarrollo de la semilla de maíz
Doctorando: Carlos Paniagua Marcos. Universidad: Alcalá de Henares
Facultad: Biología. Fecha: 21-octubre-2011
Directores: Gregorio Hueros Soto

Title: Integración de factores trancripcionales MYB de un dominio en rutas de transducción de señales
Doctorando: Maria Jose de Bustos. Universidad: Alcalá de Henares
Facultad: Biología. Fecha: 26-junio-2015
Directores: Gregorio Hueros soto y Joaquín Royo Cárcamo